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ABSTRACT

The second volume of papers commissioned by Foundations, a project designed to examine the career development needs of students entering the National Technical Institute for the Deaf, this document contains papers that deal with the instructional components of learning. An introduction presents a conceptual framework for the Foundations project, focusing on the interaction among the student, the teacher, and the content area being studied. Section I, on teacher roles and instructional strategies, includes the following three papers: "Primary Mentoring as a Teaching Strategy" (R. Hawkins); "Tutoring Special Students" (R. Osguthorpe); "Summary of Competency-Based Education, Mastery Learning and Individualization and Their Implications for the Foundations Program" (E. Nelson). Section II examines other critical considerations and includes the following papers: "The Theory of Experiential Learning (R. Kraft); "Experiential Learning as a Teaching Strategy for the Career Education of Hearing-Impaired College Students" (J. Whitaker); and "Multicultural Coping and Adaptation Competencies" (J. Wasilewski and J. Mitchel). (CL)

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Teaching, Learning and Development:

Volume II

edited by: James J. DeCaro & Ann H. Areson

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The papers in these volumes were developed in 1980 and 1981 through an agreement between the Rochester Institute of Technology and the U.S. Department of Education as part of the Foundations Development Project at the National Technical Institute for the Deaf.

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PREFACE

In 1979, after ten years of operation, the National Technical Institute for the Deaf (NTID), reviewed its experience in preparing post-secondary deaf students for living and working in a complex technological society. NTID concluded that, in spite of a remarkable record of achievement in educating deaf students and placing them in jobs, there was more work to be done with students who were entering the Institute, particularly in terms of finding more effective ways to promote their personal, social and intellectual development, normally referred to at NTID as "career development". This was substantiated in various reports produced at NTID over the course of its history. According to DeCaro and Areson (1982),

> For example, in 1977 (Areson), 55% of the students choosing majors at NTID were judged by faculty and staff, with whom they worked, as not prepared to make sound career decisions. White (1978) reported that 60% of the students who exited the NTID Summer Vestibule Program were unprepared to make career choices in the form of selecting a major. DiLorenzo and Welsh (1981) report that 31% of all students admitted to NTID from 1968 to 1979 changed their majors at least once. Of those students who changed majors, 52% changed to totally new career areas. DiLorenzo concluded that "...many students upon entering NTID are not ready to make a career choice..." in the form of selecting a major. (pp. 4-5)

A curriculum development team was charged with the task of formulating a curriculum proposal aimed at better meeting the developmental needs of entering deaf students. This curriculum project was known as the "Foundations" development project. After gathering and analyzing data from more than 150 faculty regarding problems common to new students, five general statements regarding student characteristics associated with career development problems were developed. These were:

1. students appear to have a limited knowledge base and frequently have erroneous preconceived notions regarding careers and majors;

2. students appear to have a limited knowledge of self (e.g. strengths and weaknesses regarding career clusters, value systems, interests);

3. students appear to use unsophisticated processes for decision-making;

4. students appear to lack a repertoire of coping skills;

5. students appear to possess an inadequate knowledge base regarding cultures. (DeCaro and Areson, 1982, p.5)

Fourteen topics which appeared to encompass the problem areas and general statements were identified. Papers were commissioned on each topic. They were comprised of a review of the literature and the implications of the literature for NTID's curricular programming and the education of deaf students.

Each paper was critiqued by NTID faculty and staff. A full day was devoted to formal presentations and informal discussions of each topic. At the end of a year of study and discussion with faculty, the development team presented a conceptual framework for developing new curriculum and/or revising extant curriculum.

The conceptual framework is the introduction to each volume. The framework focused upon the interaction among the student, the teacher and the particular content area being studied. Great importance was placed on students' actively reflecting upon the learning process and on their past and present experiences. Emphasis was placed on meaningful interaction with peers and adults during the reflection process o facilitate the interpretation of the experiences and the accurate ascription of cause and effect regarding the experiences.

While the "Foundations" development project was undertaken to address the career development needs of a specific population, subsequent interactions with other populations and programs persuaded the editors that the ideas in these papers can make a positive contribution to the development of many students. Thus, they are made available for others to review, ponder and use.

The particular blend of concepts or strategies may differ with various settings or populations. The professionals who are responsible for curriculum and student development in those settings are in the best position to apply their judgement, creativity and experience to the raw ingredients presented here.

All the papers commissioned for the "Foundations" development project are included in two volumes. Volume I centers on the development of the learner and the learner's processing of experiences and situations. Volume II is devoted to the instructional component of learning and to two concepts which have broad-based implications for an approach to teaching, learning and development.

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INTRODUCTION:

A CONCEPTUAL FRAMEWORK FOR FOUNDATIONS

Ann H. Areson

James J. DeCaro

Abstract

This paper suggests four major processes that should be addressed by "Foundations" experiences in order to better prepare students to select and enter a major:

1. Decision-making;

2. Reflecting upon the past and projecting into the future; applying this process to understanding current experience;

3. Effective studying and demonstrating a given level of competency vis a vis certain skills and knowledge areas;

4. Coping with conflicts inherent in the transition from the pre-college environment to the college environment.

Simply stated, it is recommended that all "Foundations" experiences focus upon the development of student capability to perform the four major processes.

Specifically, it is suggested that "Foundations" be designed using the following principles:

1. a learner-centered curriculum, maintaining a degree of content and instructor orientation;

2. a high degree of interaction with faculty and peers;

3. a set of rigorous institutional expectations, explicitly stated;

4. a curriculum and support system planned to optimize a student's experiencing success provided that expectations are fulfilled;

5. efforts to enhance cognitive, affective and psychomotor development will begin at the concrete experiential level and move toward abstraction and generalization.

This document will furnish the rationale for the processes and principles listed above and will provide a historical perspective on the "Foundations" development project. The paper is intended to be the conceptual framework for "Foundations" experiences.

Antecedents To The "Foundations" Concept

The "Foundations" concept and development project are the culmination of a series of studies and resulting reports, dating from 1976, which pertain to the early stages of students' career development at NTID. The following sections provide a historical perspective to "Foundations".

Report of the 1976 Study Group

In 1976, the Associate Dean for Career Development Programs (CDP) charged a group of faculty representing the various divisions of CDP with making recommendations relative to the early stages of career development of NTID students. The group was constituted as a result of the Institute's recognizing that problems existed with respect to student progress in these early stages. In 1977 the study group issued a report (Areson et al., 1977) that pointed out:

1. students' apparent inadequacies in English, math and career decision making competencies, and

2. the need for students to demonstrate certain levels of competency in personal/social skills in order to succeed in a major.

In addition, the report indicated that institutional programmatic responses to such problems were inadequate. Further, it was indicated that there was "...broad support for some form of preparatory program" (p. 3) that would:

1. allow students more time and more data on which to base a career decision
2. allow for more interaction with students and a more thorough assessment of students' abilities by faculty and staff;
3. allow more time for appropriate skill building. (p. 11)

It was further noted that "there was strong support among those interviewed for most of the activities and goals of SVP (Summer Vestibule Program), but general discontent with the brief time allowed for these activities" (pp. 11, 12). It was felt that, "SVP could be made into a more effective and useful program by allotting more time to those activities which have a direct relationship to the process of entering a major and postponing activities whose nature is not vital to the career decision" (p. 12).

1977 SVP Evaluation

Consequently, an evaluation of the 1977 Summer Vestibule Program was conducted to identify those aspects of SVP which should be allotted more time and those aspects which could be postponed. Additionally, the objectives and overall organizational configuration of the program were reviewed. A SVP evaluation report was issued in 1978 (White, 1978) and among the recommendations contained in the evaluation report were the following:

1. The top priority of NTID should be to formulate a comprehensive plan of how to improve students' career decision making capabilities such that most students are able to make reasonably sound career decisions at the time they enter a major.
2. Objectives for SVP should be defined and priorities established from an institutional perspective (emphasis added).
3. Measures should be taken to reduce students' feelings of excessive pressure to select a major before the beginning of the Fall Quarter. This implied not only a change in attitude about the summer but also the creation of more realistic options for more students during Fall quarter.
4. The format of information sent to students prior to SVP should be reevaluated.
5. Greater continuity in faculty/student interaction should be developed in an effort to foster more trusting relationships between the two (pp. 5,6,9,36).

The Early Stages of Career Development Concept Paper (1979)

As a result of the above studies and their findings, the CDP Associate Dean, Assistant Deans and Directors concluded that "some midcourse adjustments were needed in our career development programs" (Bishop et al., 1979, p. 2). Data were collected to better define student needs and the inadequate programmatic responses referred to in the 1976 Study Group Report. The analyses of these data resulted in the delineation of five major needs:

1. better preparing students to select a major;
2. better preparing students to enter a major;
3. facilitating students changing majors within their first two years without incurring significant costs to the student or the institution;
4. reducing the time some students are taking to complete a degree;
5. reducing the rate of withdrawals for what might be considered the wrong reasons. (p. 27)

The Concept Paper included a proposal for a Foundations Program with specific content components, i.e., life skills, general education, communication and survey of technology. The concept of a "program" was proposed not so much as a prescription but rather with the intention that it would "serve as the basis for dialogue and studies from which would emerge an appropriate solution for meeting these needs" (p. 17).

Foundations Development Project

In the summer of 1979, "Foundations" development was initiated and a two person development team was charged with three goals:

1. to better prepare students to select a major;
2. to better prepare students to enter a major;
3. to facilitate changes of major without undue cost to the student or the institute.

Articulating a development process was the first task undertaken. The development process was designed to provide for collegial debate and contribution. Further, the process focused upon defining the needs, gathering/analyzing data, constructing a theoretical framework and positing solutions.

Kaufman (1972) suggests that needs identification is an analysis of the discrepancy between where one is and where one wishes to be. Such an analysis specifies the distance between these two. He further suggests that an assessment must have at least three critical characteristics:

1. the data must be as valid and representative as possible of the actual world of the learner
2. no analysis is ever final or complete
3. discrepancies should be identified in terms of ends, i.e., actual products or behaviors, and not in terms of processes (p. 29)

Following Kaufman's construct, the development process has attempted to focus, in part, upon determining the nature and magnitude of the discrepancy or distance between:

1. environmental expectations/assumptions, and entering students' characteristics;

2. the requisite processes underlying success in college, and student facility with such processes;

3. technical, general education, and communication content expectations for selecting and entering majors, and the skill and knowledge levels of entering students.

Environmental expectations. A student's experience at NTID is influenced to a large extent by the RIT/NTID environment and by the student's ability to cope with and respond to the stresses, expectations and assumptions inherent in that environment. In the course of developing "Foundations" experiences, an essential task was the analysis of the environmental dynamics influencing students. A major thrust of "Foundations" development has been, therefore, the identification and documentation of those inherent environmental assumptions and expectations. Environmental expectations are being documented through an analysis of: expected community living behaviors, Institute rules and procedures, institutional expectations regarding toleration of individual differences and respect for the rights of others, and institutional expectations regarding the maintenance of social order. In addition, the way in which NTID and RIT are organized to deliver instruction and to interact with students is being examined to determine implicit assumptions about the student. For example, at NTID Mathematics instruction is generally delivered through a learning center and it is assumed that students can schedule their own time to work on the course and will take the initiative for seeking assistance.

Learners' entry characteristics. NTID was established to serve a special population. The admissions criteria, as specified by the Guidelines, describe the target population as follows:

1. Special Help
   A student should have attended a school or class for deaf students and/or have needed special help because of being deaf.

2. Hearing Loss
   Students must have a hearing loss that seriously limits their chance of success in college without special support services. There is a general agreement that an average hearing loss of 60 decibels (ASA) or 70 decibels (KSO) or greater across the 500; 1,000; and 2,000 Hz range (unaided) in the better ear is a major handicap to education.

3. Educational background
   A student's educational background should show that he or she can probably succeed in a program of study at NTID or one of the other nine colleges of RIT. Students who are admitted should have an overall eighth grade achievement level or above. This means that the average score on an achievement test that includes reading, math and language should be at an eighth grade level.

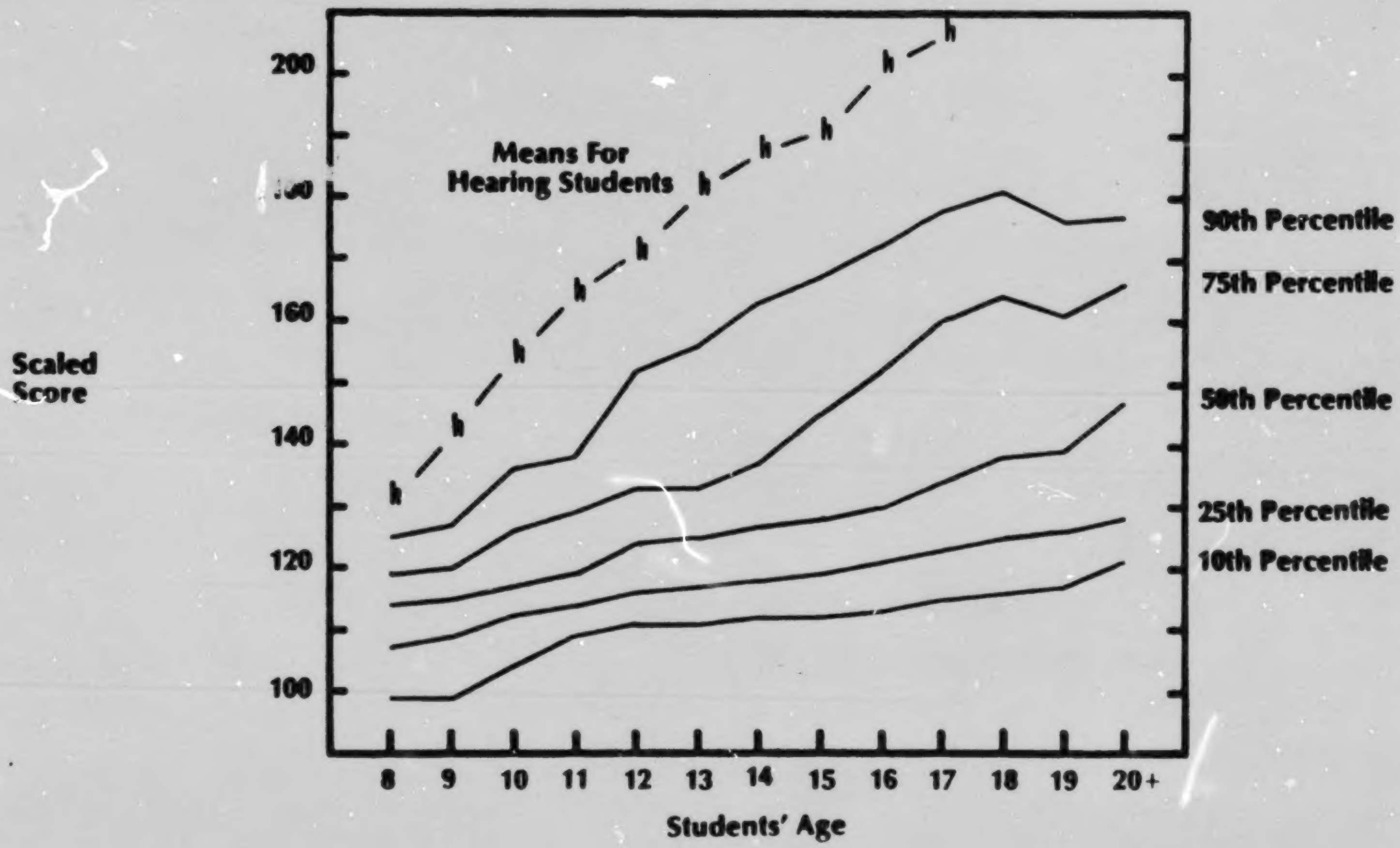
4. Secondary schooling
   The NTID program at RIT is designed for students who have finished a secondary educational program. Students can be considered for admission before completing a secondary program if their secondary school authorities feel that they will gain more from the NTID program than by remaining in secondary school. Age and personal/social maturity are given special consideration.

5. Maturity
   A student must show that he or she is personally and socially mature enough to enter a program at NTID or one of the other nine colleges at RIT. This means that students must accept responsibility for themselves and their actions and respect the rights of others. The information is provided through the student's personal references and performance in the Summer Vestibule Program (SVP).

6. Citizenship
   A student must be a citizen or permanent resident of the United States. (RIT Official Bulletin, 1980, p. 14)

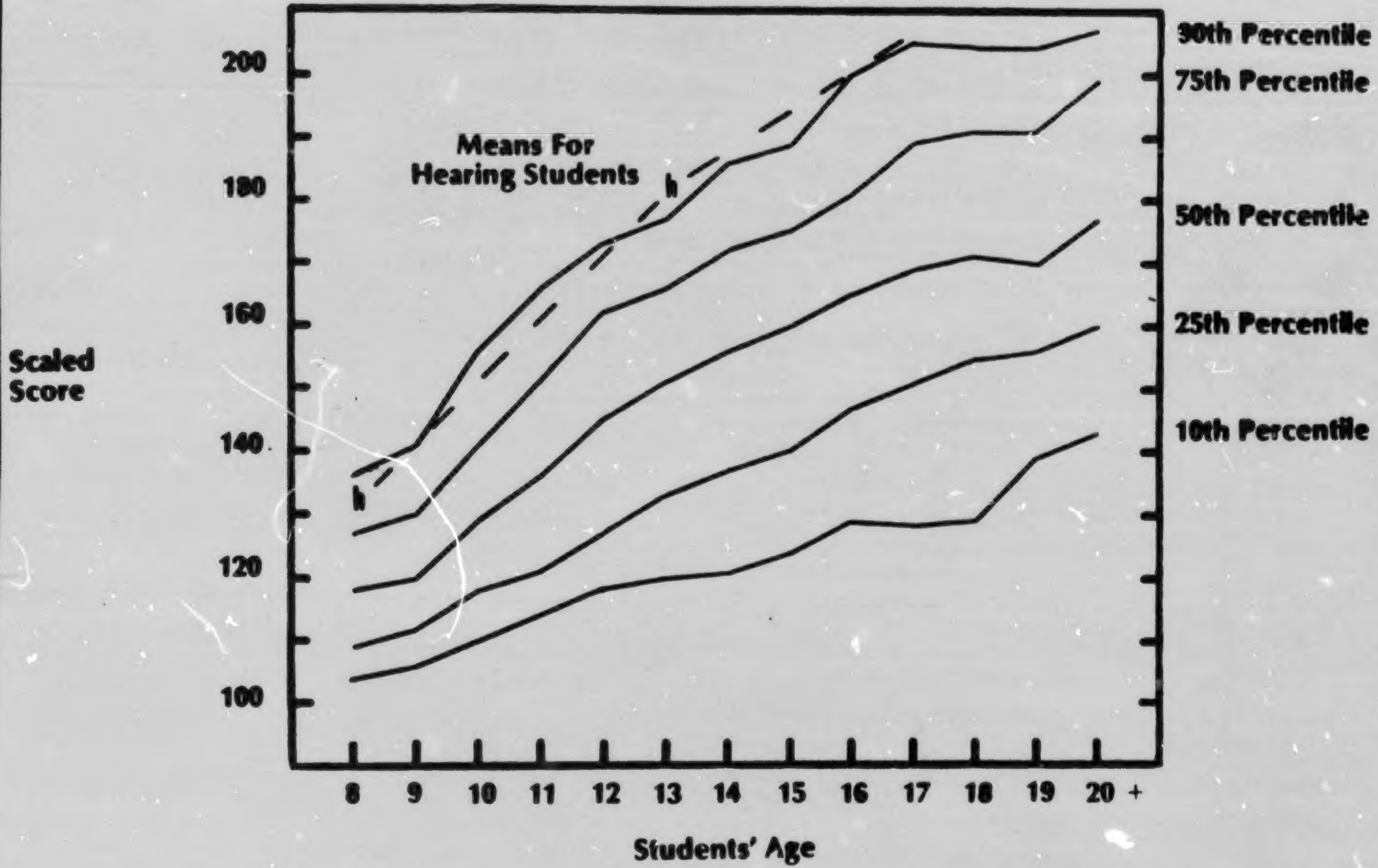
These admissions criteria have not changed since their establishment, i.e., NTID still strives to serve the same population its founders intended. An examination of some key characteristics of entering students over the past six years (see Appendix, see also Figures 1 and 2) shows these characteristics to be essentially unchanged. Not only has the nature of the entry population remained stable, but this population continues to represent the top 10% of the hearing-impaired secondary school graduates in the United States (Trybus & Karchmer, 1977).

Figure 1: Reading Comprehension Scores National Distribution for Hearing Impaired Students



(after Trybus & Karchmer, 1977)

Figure 2: Mathematics Computation Scores National Distribution for Hearing Impaired Students



A.A.D./April 1977

(after Trybus & Karchmer, 1977)

> Figure 1 shows that the median reading score at its highest point, for students aged 20 or above, is 147. This corresponds to a grade equivalent of about 4.5. In other words, half the students at age 20 (or at any younger age) read at less than a mid-fourth grade level, that is, below or barely at a newspaper literacy level. What about the high-achieving group? Figure 1 shows that the high point of the 90th percentile line occurs at age 18, where a scaled score of 181 (grade equivalent 8.1) is reached. Thus, at best, only 10% of hearing impaired 18-year olds nationally can read at or above an 8th grade level.
>
> Figure 2 presents a somewhat brighter picture for math computation, generally the highest score area for hearing impaired children. In this case, the mean line for hearing children roughly parallels the 90th percentile line for hearing impaired children, so that about 10% of hearing impaired children can do math computations at the level of the average hearing child of the same age. Most hearing impaired children, however, do much less well even here, and the median hearing impaired 20-year old reaches a scaled score of 177, just below an 8th grade level. A comparable score is obtained by the average hearing child at about age 13. (Trybus & Karchmer, 1977, p. 64)

In terms of personal/social characteristics of entering students, there is qualitative evidence that suggests a constancy in their nature. The data in the 1971 Hanner et al. report, when compared with data collected by the "Foundations" development team in the summer of 1979, show that faculty concerns regarding students' personal and social skills are essentially unchanged over the decade. Furthermore, DeCaro and Emerton (1978) established empirically that there is a developmental lag in the level of social reasoning of entering students vis a vis hearing students in the same age group. Anecdotal information gathered since 1977 suggests that this particular developmental lag still exists among entering students.

Given the apparent stability of entry characteristics over the past decade, it is clear that the original purpose and mission of NTID are not redundant. Further, since the characteristics of entering students have been shown to be stable and, in all likelihood, can be expected to remain so in the foreseeable future, interventions will have to occur at the environmental level and/or in developing certain student competencies once individuals have been identified as NTID students.

Content considerations. In order to be able to successfully enter a major, the learner must be able to demonstrate competence and knowledge in certain technical, personal/social and communication skill areas. Therefore, it has been necessary to specify the knowledge and skills that need to be developed by students during "Foundations" experiences. A content analysis has been conducted, and the findings of this analysis shall be reported separately. The content expectations are being documented by analyzing a course in each major which tests, for the first time, a learner's potential for technical success in that major. The analysis focuses on the identification of not only technical prerequisite skills and knowledge but also communication and personal/social expectations. The content analyses were focused in such a fashion because the report of the Study Group on the Early Stages of Career Development suggested four factors as being necessary for student success:

1. mathematical competency;
2. English language with specific concentration on reading comprehension;
3. the ability to make career decisions;
4. the ability to receive information well enough to be able to understand lectures, questions and directions.

Major Processes Students Must Be Prepared To Perform

Due to the nature of NTID and the nature of the curriculum offered through NTID (technical disciplines), a hearing-impaired student is required to declare the intention to pursue a specific course of study relatively early in his/her tenure at RIT. For example, students wishing to study for most NTID Associate Degrees must be prepared to declare their intention by the start of the Fall quarter of their first year at RIT. Such is the case at most community colleges that offer certificate, diploma or AAS programs of study. This circumstance can be contrasted with that of a learner seeking a Bachelor's Degree in the liberal arts who, more often than not, declares a major and is accepted by a department in his/her third year. Technical curricula at the Associate, Diploma or Certificate levels require that students take highly specialized courses early in their tenure in order that they can complete such curricula within the time limit generally allotted. Unfortunately, many NTID students seeking such certification are not adequately prepared to select or enter a major (Bishop et al, 1979) and often are unable to demonstrate the ability to succeed in the major. For example, the attrition rate from NTID programs since 1974 has been 40 percent and is projected to reach 43 percent (DiLorenzo, Marron & Welsh, 1981) in spite of the special nature of the services and curriculum provided for learners at NTID. In addition, DiLorenzo and Welsh (1981) supported the contention that students are ill-prepared to select or enter a major upon arrival at NTID when they stated that:

> 1. The conclusion and concern of the "Conce t Paper" (Bishop, et al, 1979) that many students, upon entering NTID, are not ready to make career decisions is substantiated.
>
> 2. Many students' lack of preparedness to select a major at entrance to NTID is demonstrated by the wide range of majors to which they change.
>
> 3. Significant numbers of students recognize early that they not only selected the wrong major, but they are still not ready to select a career area and elect to spend some time in NCDS. (pp. 14-15)

The Report of the Study Group on the Early Stages of Career Development (Areson et al., 1977) suggested that SVP could be made more effective by emphasizing those activities which have a direct relationship to entering a major. Furthermore, the 1977 summer SVP evaluation report (White, 1978) suggested that the top priority of NTID should be the formulation of a plan to improve student decision making capabilities so that students are able to make sound career decisions at the time of selecting a major. In addition, data collected in the summer of 1979 during intensive workshops with faculty highlighted sixteen problem areas that faculty perceived as needing attention in order to improve the student's likelihood of success at NTID (see Appendix A). Of the sixteen problem areas, six were eliminated from consideration in the "Foundations" development project because the Career Development Programs administrative group perceived them as broader institutional curricular issues, i.e., outside the scope of consideration for "Foundations". The "Foundations" development project continued to consider the problem areas during development so as not to replicate the weaknesses or problems inherent in extant systems. The problem areas isolated for consideration by "Foundations" (see Table 1) relate directly to the processes of career decision making and preparation to enter a major.

TABLE 1

Synthesis of Problem Statements in Appendix A[1]

A. Our students have a limited experiential and information base. (synthesis of original #1 and #5)

B. Our students have a limited knowledge of self, e.g.:

   a. strengths/weaknesses re career clusters
   b. values system
   c. interests

C. In the area of problem solving, our students appear to have a limited repertoire of coping skills and limited exposure to having to make decisions in a variety of contexts and settings. (ref. need to enhance process skills and broaden the information base) (synthesis of original #3 and #4)

D. We are unable to provide appropriate experiences for students who are at various levels of indecision or indecisiveness.

E. There is a gap between students' entry abilities and the criteria for entry into majors, and there is insufficient time to address this gap prior to the students' entry to a major. (synthesis of original #12 and #14)

F. There is a lack of a systematic process for assessing a learner's strengths and weaknesses re majors and for transmitting such information to the learner and to the appropriate administrative authority re the major.

[1] Statements 6, 7, 8, 11, 15 and 16 were eliminated at the suggestion of the CDP administrative group. We chose to eliminate #10, as it is subsumed under other problem statements.

Studies conducted to date suggest quite clearly that the outcomes expected of "Foundations" are appropriate and necessary:

1. to better prepare students to select a major;
2. to better prepare students to enter a major.

A Developmental Approach

Foundations will be characterized by a developmental rather than remedial approach to education because the developmental level (Belenky, 1980; Athey, 1980) of an individual influences his/her interpretation of life situations (e.g., selecting and entering a major), and since developmental theory provides some broad indicators of how an individual will react in such situations. Belenky (1980) presents a variety of factors that she suggests contribute to the development of social reasoning. Citing Piaget and Kohlberg, she argues that moral development depends upon having a wide range of role taking opportunities in a variety of social institutions and suggests that the opportunity to participate in an ongoing dialogue is likely to be essential for the development of the individual. She also suggests that hearing-impaired people often experience a deprivation in social interaction (Stokes, 1945; Brunehwig, 1936) and display a lag in understanding the interpersonal dynamics of social relationships (Levine, 1956). Harris (1978), in reviewing four studies of impulse control that utilized standardized assessment (Altshuler et al., 1976; Binder, 1970; Moores et al., 1973; Harris, 1976), concluded that a loss of auditory input appears to have a retarding effect upon the development of impulse control in deaf adolescents. The findings of DeCaro and Emerton (1978), that most deaf students entering the NTID between 1975 and 1977 were operating at the pre-conventional level of reasoning on Kohlberg's (1969) scale of reasoning are therefore not surprising. Belenky (1981) describes the pre-conventional stage as follows:

> ...characterized by hedonism - the good is that which satisfies one's own needs, interests and wishes. The right and needs and feelings of others will be considered to the extent that such considerations are seen as benefiting the self. "Tit for tat" suggests the basis for this thinking which has achieved some liberation from adult constraint. As adults are no longer seen as omnipotent the interests of the self can be asserted more fully...Preconventional adolescents delayed in development are still under the influence of internal and external physical stimuli, rather than that of symbolic representations conceptualizing past and future roles and values which have been shared and self-examined. (p. 8)

This description is remarkably similar to faculty statements characterizing the behaviors of NTID students (Hanner et al., 1971; Appendix A).

While it is clear that the development of the college-age hearing-impaired person lags behind that of his/her hearing peer, it is not altogether clear what can or should be done to facilitate development. There are, however, important suggestions that can be drawn from the literature. For example, irrespective of the model used to study human development (Athey, 1980), implicit in each is the assumption that there will be intensive and prolonged interaction in social settings with peers and mature adults. In addition, Schlesinger (1978) suggests that an adolescent must have meaningful, reciprocal, and largely positive interactions with the environment in order to move through the first three developmental steps described by Erikson (1964; 1968). Further, Belenky (1980) suggests that special efforts should be made to provide young people with two broad kinds of experiences that can enhance their development of moral judgment:

> 1. extensive, participation in the governance of fairly complex and sizable democratic institutions where...conflicts would be fully debated...
>
> 2. working with others on an individual basis where such qualities as care, responsibility, and understanding are essential and reciprocated (p. 42).

"Foundations" experiences will include meaningful, reciprocal, and positive interaction in social settings with peers and mature adults. Learners will be provided opportunities for involvement in the governance of complex democratic systems where there is human interaction directed at the resolution of conflicts inherent in such systems.

First Process - Managing and Coping with Conflict

Since many learners come to NTID ill-prepared to enter and select majors, there is a need for such preparation to occur at RIT. The environment of RIT is significantly different from that to which most learners are accustomed. Even those students who have attended the most academically stringent of preparatory high schools find the transition to a university setting to be a formidable challenge. Such a challenge is even more formidable for hearing impaired students who may be, for the first time, in an educational setting where the student body is predominately hearing. An antecedent to preparing to select and enter a major is, therefore, the ability to manage or cope with the conflicts inherent in the transition from the pre-college environment to the RIT environment. The strategies which can be used in the resolution of such conflict are similar to those that have been isolated for persons making the transition from one culture to another: adherence, substitution, addition, synthesis, and creation (Wasilewski & Mitchell, 1980). Similarly there are general social competencies, e.g. role-taking, knowledge of alternative strategies and the appropriate use of alternative strategies (Weinstein, 1969), which can be helpful in resolving the conflicts in such a transition. Such conflicts are often related to differences in attitudes, patterns of thought, social organization, roles and role perceptions, language, use and organization of space, time conceptualization and non-verbal expression (Samovar & Porter, 1976), i.e., there is a knowledge and skill component to managing and coping in a cross cultural "type" setting. The faculty of NTID (Table 1) have isolated informational and process skills necessary to facilitate student success.

Foundations experience will attempt to optimize the potential for students' managing and coping with the conflicts inherent in the transition to college by:

1. assisting students in identifying the differences between their attitudes, patterns of thought, social organization, roles and role perceptions, use and organization of space, time conceptualization and non-verbal expressions and those that are expected of students at RIT.

2. helping students become aware of and gain skill in the appropriate alternative strategies that are available to resolve the differences.

In order to be of assistance to students in this respect, Foundations experiences and NTID must provide learners with a clear series of expectations regarding social organization, roles, use and organization of space, use and organization of time and the like.

Second Process - Decision Making

The selection of a major is a decision-making activity. Student decision making will be a second major process to be facilitated/developed by "Foundations" experiences. Steve (1980) has suggested reasons, well supported in the literature, why an individual does not succeed in a decision-making situation:

1. He suggests that individuals can fail because they lack the prerequisite skills to search out, recognize and use relevant information. This is best described by Gagne's (1968) theory of hierarchies of learning and could be termed the "learning deficit explanation."

2. Individuals may fail because their information processing capabilities are taxed beyond their limits. Steve refers to this as the "biological limitation explanation" which has been described by Simon (1976).

3. He suggests that poor decision making involves the conflict individuals feel in decision situations with important consequences. He refers to this as the "decisional conflict explanation" best described by the model constructed by Janis and Mann (1977).

The entering student, in order to be successful, must be able to function in many situations under varying degrees of risk, informational and time constraints. Most, if not all, of these situations require the student to make decisions of varying degrees of importance and to recognize the relative degrees of importance vis a vis their outcome.

Steve (1980) recommends that certain environmental modifications regarding information and time can be made to foster quality decision-making. He also identifies certain considerations internal to the decision maker, regarding risk, which also must be addressed to facilitate decision-making.

Environmental considerations. With respect to information Steve recommends that, to facilitate student career decision-making, "Foundations" should consider: the type of information required in the decision, the availability of that information, the presentation form of the information which students may need, and strategies to insure that the information is accessible at the time the decision is made. There will be three principles used in the determination of career decision information to be incorporated into "Foundations" experiences:

1. the information must be useful or relevant to the career decision of selecting a major;

2. the information must be available to students in an economic fashion relatively free of distractor information;

3. the information must be accessible to the student at the time the decision is being made.

In addition, there must be a component of "Foundations" which seeks to develop information search, recognition and use skills because:

a. such skills are generalizable to new decision situations;

b. the necessary information for most decisions is almost never neatly presented to a decision maker.

With respect to time, the human is a biologically-limited information processor, and the three principles listed above are a necessary but not sufficient consideration in facilitating development of decision-making regarding selection of a major. There is often insufficient time for students to process the information necessary to make an appropriate selection of a major.

As indicated previously, the Study Group On The Early Stages of Career Development (1977) recommended that students need more time for making career decisions. It is therefore necessary for "Foundations" experiences to provide students with more time than is currently allotted for making career decisions. This can be accomplished, in part, by initiating certain of the "Foundations" experiences prior to students' arriving on the RIT campus.

Internal considerations. In addition to time and information, which can be controlled environmentally, there are perceptions and beliefs internal to the decision maker that affect the quality of the decision processes used. These perceptions relate to the risk in continuing a current course of action, the risk involved in changing a course of action, and the belief that a better solution can be found. These perceptions need to be clarified by the individual making a decision and need to be brought into conjunction with the realities of the decision situation. It is in the articulation, clarification and bringing into conjunction of perceptions and "realities" that there is a need for intensive human interaction. The individual involved in decision-making should interact with a person or persons who can objectively facilitate reflection upon perceptions of risk and the belief in the existence of potential solutions. Such a role can be played by counselors, mentors (Hawkins, 1980), peers (Osguthorpe, 1980) or classroom teachers. The concern is not so much who is the facilitator but rather that the facilitation can be demonstrated to be occurring systematically. Due to the complex nature of such facilitation, it will be necessary to have mature adults play this role, and it will also be necessary to design some "formal" experiences that encourage reflection. The third major process to be an integral part of "Foundations" experiences will focus upon reflection.

Third Process - Reflection

Dowaliby and Pagano (1981) have pointed out that a learner enters a decision situation with a multitude of previous experiences, and that some of these experiences share characteristics with the current decision situation. In order to negotiate a new situation, the decision maker must first isolate the characteristics of past experiences which are salient to current circumstances. Based on the past experiences and the configuration of the current circumstances, the person will have certain expectations regarding his/her chance of success in meeting the challenges embodied in the new situation. The expectation will influence the amount of effort the individual is willing to expend. This leads to action and a resulting outcome along a success continuum. The outcome will generate an affective response in the decision-maker, and the accuracy of causal ascription will depend upon:

1. correct analysis of the decision task,
2. accurate perception of own resources relative to the decision task,
3. adequate expenditure of effort.

In order to grow, an individual must be able to identify what he/she did that contributed to the resolution of a decision conflict and to store that as part of the experience base to be mobilized in future situations (Athey, 1980). The more the learner engages in the process just described and the greater the range of experiences assimilated, the greater the probability that, faced with a situation with different surface stimuli, he/she will be able to identify shared general characteristics with previous experiences and apply learnings from these previous experiences to the resolution of the new situation.

"Foundations" will therefore attempt to develop students' abilities to:

1. reflect upon past experiences and determine which of those experiences are related to a decision situation at hand;

2. isolate those characteristics of said experiences that are salient to the decision situation at hand;

3. project a series of expectations regarding success and willingness to expend effort;

4. accurately assess one's own resources relative to the task at hand;

5. adequately expend effort (take some action) in accomplishing the task at hand.

Here again there will be a need for intensive interaction between a decision maker and a facilitator. Such interaction will need to be student-centered (Hawkins, 1981), i.e., the primary objective of the interaction is student development, and the facilitator must be flexible in order to meet the student's needs as a developing human being.

Several reviews of the literature (Athey, 1980; Belenky, 1980; Dansereau, 1980; Dowaliby & Pagano, 1981; Kraft, 1980; Steve, 1980; Whitaker, 1980) have indicated the need to assist students in identifying the relationship between characteristics of previous experiences and those of current experiences. Focusing upon the affective and cognitive outcomes of prior experiences will help to establish a baseline for addressing new experiences.

Fourth Process - Studying

Upon entering an institution of higher education students are expected to be prepared to engage in independent learning. However, data indicate that students enrolling at NTID are weak in such skills. For example, Hanner et al. (1971) listed a series of "observations on which there was substantial agreement among instructors about the deaf students" (p. 11). One such observation was that students are "not fully aware of the effort and learning strategies required to be successful in studies at the post-secondary level" (p. 12). This condition has remained substantially unchanged--a needs assessment conducted with faculty in 1979 (see Appendix A) uncovered essentially the same concerns. Faculty in the Advanced Program support teams and General Education Programs continue to offer study skills courses to hearing-impaired learners. Further, career counselors offer seminars to students in NTID's certificate, diploma and associate level programs on such topics as time management, scholastic motivation, studying for exams and coping with differing teaching styles. In effect, considerable resources have been directed at developing students' abilities to learn and study.

The fourth process to be facilitated by "Foundations" experiences will be the development of study skills. To facilitate discussion, studying will be broken into two broad categories: willingness to study and studying strategies.

Willingness to study. Willingness to study is dependent upon the student's perceiving a need for studying in order to achieve his/her goals. In an attempt to identify the goals of entering NTID learners, Stinson (Lang and Stinson, 1981) conducted a study in which twenty students were interviewed. The students were administered a standard set of open-ended questions in order to determine why they had come to NTID, what were their concerns upon entry and what was most exciting to them upon entry. The reason most commonly identified by the students for coming was "social" with "academic reasons" being cited second -- the difference between the two was statistically significant. Further, it was found that entering students felt that attending college was of real value for their future but were not able to articulate their career goals very well. In addition, the students expressed concerns about entering a career and being successful academically but they less frequently expressed concerns (statistically significant) about establishing social relationships or self maintenance (funds etc.). Students may be willing to study but may be placing study in a secondary position as compared to socialization. Anecdotal information collected from career counselors, faculty and staff tends to support this contention.

When a student's willingness to study is in question, the student must first know what is required, regarding study, to succeed at college and must compare this with his/her own expectations. That is, the student must compare and contrast the study effort and skills deemed necessary for college success with his/her own expectations regarding study, academics, and socializing, and must identify the discrepancy between the two. As a result, the student will know a discrepancy exists but may not comprehend the meaning of the discrepancy since he/she most likely has not had to demonstrate the study behaviors necessary for success in college. It is necessary for the learner to experience a situation in which he/she has an opportunity to test the reality of discrepancies identified. Such an experience will need to be processed by the learner (see the section on Reflection) in order for him/her to begin to understand the magnitude and the nature of the discrepancies and to take some action to eliminate these discrepancies.

Study related skills. A student may be willing to expend effort in studying but may lack certain study skills. For example, students may not possess the skills to manage their schedules and prioritize competing social and academic time demands. In addition, students may not possess adequate skills at identifying and understanding relationships in what they study, selecting the important material from what they study and cognitively reorganizing the materials into a personalized schema (Long, Hein & Coggiola, 1978).

Dansereau et al. (1979) describe a series of six primary comprehension-retention and retrieval-utilization learning strategies: mood setting, understanding, recall, digesting, expanding and reviewing. They also identified a series of support strategies for optimizing the internal psychological environment of the learner: goal setting and scheduling, concentration management, monitoring and diagnosing. A learning strategy system, composed of instruction in these primary and secondary strategies, was developed and used with college-age learners. The system proved to be effective in enhancing the behaviors and attitudes of participants (Dansereau et al., 1979). Dansereau (1980) suggests that many learners could benefit from such skills and strategy training courses. He recommends that, if possible, "the skills and strategy programs should be run in parallel with regular content courses" (p. 88).

Developing studying skills. "Foundations" experiences will include a component which focuses upon:

1. assisting students in identifying the discrepancy between study behaviors needed in college and their behaviors prior to entering college;

2. providing students the opportunity to test the reality of this discrepancy by participating in rigorous academic activities which require study for success and in which they can be successful if they study;

3. facilitating reflection upon experiences (2 above) in order to assist students in focusing upon the effort and skills needed for academic success;

4. providing skill and strategy instruction of the type developed by Dansereau et al. (1979).

Summary

In summary, there are four processes upon which "Foundations" will focus in order to better prepare students to select and enter majors:

1. coping with or managing the conflicts inherent in the transition to the college environment;

2. decision-making;

3. the ability to reflect upon past experiences, relate these to new experiences and take action regarding the new experiences;

4. studying and demonstrating a given level of competence vis a vis certain skills and knowledge areas.

Design Principles

There are a variety of orientations that could have been selected to characterize "Foundations" experiences: a learner-centered orientation, a content-centered orientation, or an instructor-centered orientation (Hawkins, 1980). "Foundations", from its inception, has derived its focus from a commitment to better meet entering NTID students' needs in preparing to select and enter majors. It is appropriate, then, that the hallmarks of "Foundations" experiences, i.e. its tenets, be directly tied to fulfilling this commitment. "Foundations" will be an integrated set of learner-centered experiences.

In the learner-centered orientation, the needs of the student for overall human and social development are considered to be primary (Hawkins, 1980). Chickering (1981) suggests that learning and human development are additive and occur in the context of a student's past history, personal characteristics and motives. He states that, "this makes information about the knowledge and competencies gained from work and life experiences especially important in designing effective education..." (p. 16). He suggests that, "we are tackling the bedrock task of human development..." (p. 16) when we attempt to achieve the end of effective preparation for work. This is particularly relevant when one considers a series of generic competencies identified by Klemp (1977) as necessary for success on a job:

1. communication skills,
2. information processing skills, conceptualizing skills,
3. ability to learn from experience,
4. ability to understand many sides of a complex issue,
5. accurate empathy, positive regard for others,
6. giving assistance, controlling impulsive feelings,
7. define oneself as actor, cognitive initiative, proactive stance.

Very often curriculum will sacrifice the development of these generic skills for the development of content area knowledge. "Foundations" experiences will seek to facilitate the development of the seven skills areas cited above. In so doing, student needs and level of development will be considered to be of primary importance. Since education is the process of movement from one skill, attitudinal, knowledge, or developmental level to another, students' entering skill, attitudinal, knowledge or developmental levels will be the starting point for "Foundations" experiences. Since learner-centered experiences focus upon "meeting the student where he/she is" and facilitating movement to where he/she needs to be in order to successfully meet academic challenges, "Foundations" experiences will be designed to accommodate entering students' developmental levels, while providing the conditions to facilitate the attainment of higher levels of development.

The learner-centered orientation will not, however, be taken at the exclusion of the other orientations. There will be a degree of content-centeredness in "Foundations" experiences. In a strict content-centered orientation, teachers and students would be expected to adjust their behaviors or attitudes to accommodate the requirements of the content disciplines (majors). The majors would, in effect, dictate the skills, facts or propositions that must be acquired, and there would be little room for deviation. Such an orientation is the one most often taken by those of us educated in technical disciplines. Unfortunately, the pre-requisite skill requirements of a discipline are not quite as unambiguous as one might expect at first glance. While a content analysis can isolate broad and general skill requirements across disciplines, there is debate within disciplines regarding the specific competencies necessary to enter a career area. Since "Foundations" will be held accountable for better preparing students to enter a major, there will be a need for a degree of content-orientation but, since disciplines are not static and there is a lack of clarity regarding prerequisites, it will be necessary that the content addressed in "Foundations" be common across NTID disciplines.

In addition, there will always be a need for those valuable insights, anecdotes and touches of humanity that can be provided only by a teacher with experience. There is, therefore, the need for a degree of instructor orientation in "Foundations". Taken to the extreme, however, an instructor considers him/herself to be "the" model for students to emulate, i.e., the unique approach he or she takes to teaching is considered to embody the content taught. The student is expected to go to the teacher in search of wisdom and is expected to accommodate his or her personality or style.

Principles

There are four principles that will be utilized in designing "Foundations" experiences:

1. there will be a set of rigorous institutional expectations, explicitly stated;

2. if expectations are met by the student, success will be experienced; if expectations are not met, there probably will not be a successful outcome;

3. there will be a high level of interaction between students and faculty, as well as between entering students and older students;

4. "Foundations" experiences will be designed to move from a concrete, experiential base toward abstraction and generalization.

Wherever possible these four principles will be adhered to in the design, construction, and implementation of "Foundations" experiences.

Rigorous expectations, explicitly stated. The college environment places demands upon students' adaptive skills, in terms of meeting both social and academic expectations. Currently, the first experience most students have at NTID, the Summer Vestibule Program, tests a student's ability to cope socially but does not provide an accurate and realistic sampling of the academic demands a student will face in the Fall Quarter and beyond. Therefore, realistic and accurate academic expectations will be established from the student's first contact with "Foundations".

The need for explicit statement of the expectations derives from most students' limited experience with inferring rules and correctly interpreting unstated expectations from abstract and loosely-connected experiences. Since students' developmental levels may require clarity of communication, a minimum set of institutional expectations will be made explicit to the student from the beginning of his/her association with NTID.

Experiencing success if expectations are met. Explicit statements of expectations are a necessary but not sufficient condition for optimizing a student's chances of success. For example, with respect to acceptable levels of studying, academic success can be accomplished through the utilization of support systems (e.g., tutoring, mentoring, study skills instruction, etc.) which will optimize the probability that the student can meet the challenges of academic college.

Dowaliby and Pagano (1980) has pointed out that a person will attribute success to his/her own actions if he/she has succeeded in a situation that was challenging, in which he/she expended a reasonable amount of effort and in which he/she expected to succeed. Although "Foundations" experiences will be designed to optimize success, they will be challenging and require considerable expenditure of effort on the part of the student.

A high level of interaction. Many students come to NTID with limited experiences in interacting with adults, peers, and social systems. Communication difficulties with hearing individuals and restrictive environments in many schools are primary contributors to the reduced frequency of such interaction. Liben (1978) suggests that a deprivation in a student's experience may have serious consequences for development:

> Social experience may also be divided into two components. First, social interaction provides the opportunity for transmission of the society's knowledge, traditions, mores, values, etc., through both formal and informal means, for example, school and family. Second, social interaction provides the opportunity for the child to develop social-cognitive skills. Interactions with adults and peers force the child

> to recognize that others' viewpoints may differ from his or her own, thus helping the child to decenter from the egocentric perspective of preoperational thinking. (p. 198)

"Foundations" will be designed to encourage and facilitate reciprocal social interaction with peers and adults through systems of mentoring, student participation in the governance of "Foundations" experiences and non-didactic approaches to teaching. In addition, major emphasis will be placed upon facilitating students' development of competency in the four major processes until they are able to perform the processes with limited assistance.

Concrete to abstract. Learners entering NTID tend to be pre-conventional in their thinking (DeCaro and Emerton, 1978), and persons at the pre-conventional level are "...still under the influence of internal and external physical stimuli, rather than that of symbolic representations conceptualizing past and future roles and values which have been shared and self-examined" (Belenky, 1980, p. 8). Colby and Kohlberg (1973), Kohlberg (1969), Kohlberg and DeVries (1969), and Kuher, Kohlberg, Langer and Haan (1975) have shown that there is a corresponding stage in Piagetian developmental levels for each moral stage. Belenky (1980) has, however, pointed out that mature cognitive reasoning does not automatically assure that there will be maturity in moral reasoning. She also indicates that while evidence shows (Furth, 1964; 1966; Vernon, 1967) that the early stages of cognitive development described by Piaget are not delayed in deaf children, the evidence is not so clear for development of formal operational thought. She suggests that "if hearing impaired adolescents are unusually delayed in achieving the capacity for abstract, formal thought, that delay could contribute to the unusually low levels of moral reasoning in (deaf) college students observed by DeCaro and Emerton (1978)" (p. 22). It remains to be seen if students do lag in the achievement of formal thought; however, ancedotal information would tend to indicate that such a lag is likely.

Parasnis and Long (1978) have reported data which show that NTID students tend to be more field dependent than their hearing peers. Further, Dowaliby (study in progress) has found that NTID students are more people oriented and desire greater structure in a learning situation than do their hearing counterparts -- these are traits characteristic of field dependent persons. There is data (Koran, Snow & McDonald, 1971; Maranty & Dowaliby, 1973a; 1973b) which establishes a trait-treatment interaction between field dependence/independence and destract/concrete presentations of learning materials. For example, Koran et al. (1971) suggest that "...explicit, concrete presentation of the stimulus elements...may provide a behavioral representation for the learner that he could not generate for himself..." (p. 226). Concrete models and well illustrated verbal presentations appear to serve a compensatory function for field dependent learners.

While there are no studies regarding deafness which link the constructs cited above to the desirability of concrete vs. abstract instrumentation, the data are considered to be strong enough to warrant addressing learners in such a fashion as to progress from the concrete to the abstract in "Foundations" experiences. A variety of concrete and tangible experiences will be designed to provide opportunities for students to take many roles, to interact with adults and peers, to take reasonable risks, to take an active problem-solving stance and to experience cause-effect relationships. Such opportunities are often missing from many students' backgrounds and are necessary if the students are to successfully master the four processes put forward in this paper.

Concomitantly, "Foundations" experiences will begin the process of moving toward the abstract and generalizable - with appropriate supports to enable the student to do so. Given the current status of the technical courses in various majors, preparedness to enter translates partially into the ability to manipulate abstractions and to make generalizations. It would be a disservice to students not to attempt to facilitate the development of such abstract reasoning processes.

There are some hypotheses and assumptions which have been made in developing this conceptual framework that will be tested during the pilot and implementation phases. For example, it is hypothesized that most entering students have attained the level of concrete operational thought but not formal reasoning--this will be tested. Finally, the "Foundations" concept - as well as the concept of an NTID - are essentially embodiments of the hypothesis that significant interventions can be made to facilitate the development of hearing-impaired individuals.

Conclusion

This document proposes four major processes that "Foundations" experiences should address in order to better prepare students to select and enter majors. The paper also proposes some broad principles to be used in the design of such experiences. The proposal of these processes and design principles comes as the culmination of a needs assessment and approximately two years of dialogue regarding several theoretical constructs. This document submitted to NTID as the conceptual framework around which "Foundations" will be designed.

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APPENDIX A

Problem Statements Isolated In 1979

1. Our students have a limited knowledge base and frequently have preconceived notions re careers and majors.

    1. Work experience limited
    2. Sex-stereotypes
    3. Majoring in college, liberal arts/tech
    4. External influences on choice
    5. Expectation/ability don't mesh
    6. Personality influences (don't like chairperson - won't major in that dept)
    7. Misconception of majors (civil tech. bulldozer driver)
    8. Choice of majors influenced by ideas of salary
    9. Limited exposure to career options and role models

2. Our students have a limited knowledge of self, e.g.,
    a. strengths/weaknesses re career clusters
    b. values system
    c. interests

1. External control (peers, parents, etc.)
2. Ability and expectations don't mesh
3. Lack of ability to introspect
4. Help seeking (wrong person, wrong time, wrong way)
5. Very limited experiential base/lack of feedback
6. Unwillingness to take responsibility for decision (seeks a solution, not advice)
7. No developed value system - or underdeveloped
8. Black and white way of viewing the world, values, behaviors

3. Our students use unsophisticated processes for decision-making.

    1. Don't consider alternatives, risks, consequences
    2. External influences on decision (peers, parents)
    3. Accountability - we don't hold students accountable, students won't accept accountability
    4. Discrepancy between social expectations and real limitations of a disability
    5. Process students use (if they use one) seems to be based on "today"
    6. Limited information on which to base a decision
    7. Seek decisions from authority rather than making decision for self

4. Our students lack a repertoire of coping skills.

   1. Unwillingness to face problems (transfers, LOA, turn-off when encounter difficulties) (fear of failure??)
   2. Inability to transfer what they did in one situation to another (English skills to photo, strengths in solving problems in past to solving problem now)
   3. Need for immediate response to problem
   4. Lack of awareness of normal range of problems
   5. Locus of control (other people need to change; they control my destiny)
   6. Students can't separate problems (all are intertwined)
   7. Problems with time management and setting priorities

5. Our students possess an inadequate knowledge base re cultures and their development.

    1. Stereotyped ideas about careers and groups
    2. Rigidity and low tolerance for differences
    3. Lack of appreciation for deaf culture, where they come from
    4. Don't understand dynamics of a setting
    5. Severe culture shock upon arrival at NTID
    6. Inability to judge life experiences, to be non-judgmental about things they can't always be judgmental about
    7. Generalizability - transferability - applicability of principles, concepts

6. An NTID student's sense of purpose and identity emanates primarily from affiliation with a major.

   1. Lack of incentive for courses outside the major or when in NCDS
   2. External control on I.D. (also transient)
   3. Crash when don't have a major
   4. Identification may be with people in major, not major itself

7. There is no centralized body which reviews and monitors an individual student's flow as well as aggregate student flow.

   1. Only counselor has access to all info but everytime the student changes, he gets a new counselor
   2. Lack of uniformity/uniform criteria in how departments determine if students can transfer in or out
   3. Changing roles of counselors, staff chairpersons leave question of authority/responsibilit up in air
   4. No one person is totally aware of any one student's history
   5. Our attitude makes it easy for students to change
   6. It may be preferable not to have a centralized body/big brother
   7. When counselors change, info about students is lost - student may make same mistake again and again

8. We lack an institutional definition of aberrant student flow.

   1. Don't have parameters to vary from (#'s of changes, time limits, etc)
   2. Ambivalence re LOA's, changes
   3. Ethical/Policy Issues - How much time, resources is one student entitled to? etc.

9. We are unable to provide appropriate experiences for students who fall in the different cells of the matrix.

	Has Necessary Skills For Major	Does Not Have Necessary Skills for Major
Knows what major he/she wants and it is an NTID/RIT major		
Knows what major he/she wants and it is not offered at NTID/RIT		
Does not know what major he/she wants		

1. How far does NTID's responsibility go in providing experiences for all students?
2. We aren't making enough use of individualized instruction, multiple entry points
3. Low-skill students very frustrated in skill improvement tracks

10. Students are forced to choose a career direction prior to being ready and able to do so.

    1. External influence on decision-making
    2. Lack of information
    3. How can we measure when students are "ready" for a decision
    4. Our structure forces people into choices which may be premature

11. Students lose an unacceptable amount of time and credit in transferring from major to major.

    1. Lack of multiple entry times
    2. Lack of options for students who are undecided or who want to change majors in quarter when new major isn't opening
    3. Students lose time even in natural changes (Civil or Arch to Indust. Drafting; C.S. to NBTD)
    4. Students "in-between" majors lose motivation to study

12. There is a gap between students' entry abilities and the criteria for entry into majors.

    1. Our entry criteria may be unrealistically low considering how far we have to move students by time of major (entry and exit) and the amount of time we have to do it in
    2. What are implications of our criteria for multiply-handicapped students
    3. Secondary schools' records cannot always be relied upon
    4. Need better assessment of skills and transmittal process to students for early discussion of most realistic and most unrealistic options open to students

13. There is a lack of a systematic process for assessing a learner's strengths and weaknesses re majors and for transmitting such information to the learner and the appropriate administrative authority re the major.

    1. Team concept - good concept, what will happen to it? Could lead to fragmentation re the student's input
    2. Who is responsible for transmitting info to student, to faculty
    3. Tests may not be valid with our population

14. There is insufficient time to develop process skills and content mastery prior to the student's entry to a major.

    1. Validity of requirements/false requirements
    2. Treating all students as if they all had same needs
    3. Lack of experiential base

15. We lack multiple entry points to NTID and to majors.

    1. Strategies like - multiple sections, self-pacing
    2. What is pay-off of going to multiple entry - how many students are we talking about
    3. NTID-RIT-NTID flow may put students out of sequence

16. We lack specified institutional, departmental and major requirements for institutional curricular offerings and for certification of students.

    1. The requirements we do have, we don't enforce
    2. Validity of requirements
    3. Sequencing of requirements

J.Decaro-8
7/15/81:bh

SECTION I:

TEACHER ROLES AND INSTRUCTIONAL STRATEGIES

Primary Mentoring as a Teaching Strategy

Roger Hawkins

Primary Mentoring as a Teaching Strategy

In doing a literature review for NTID's Foundations Program it should be noted that there is not a great deal of published material on mentoring *per se*. What there is seems to fall into three categories: general studies in non-traditional education; studies on mentoring and mentor-like roles at specific colleges; and studies on specific aspects of non-traditional learning, for example, contract learning. To facilitate the readers' knowledge of the literature in these areas I have included an annotated bibliography of the most important sources at the end of this essay.

Since the main purpose of this project is to articulate the essential characteristics of mentoring to the Foundations Program so that the role might be adapted to an already existing "traditional" structure, it was felt that a mere literature review would not convey that information. Therefore, this paper is in the form of a narrative essay incorporating characteristic examples of all three categories of the literature in its development. Part I deals with some historical developments in educational philosophy focusing on the reintroduction of the mentor in modern education. Part II combines some current research of mine with an elucidation of the principles of caring to create a new definition of mentoring. Part III deals with applications of the mentor role articulated in this essay to a hearing impaired population of students.

The reader may wonder why this essay centers on Empire State College. The reason is that ESC is the most studied college employing the mentor role as its only faculty position. Any study of mentoring would have to include this experiment prominently for quite clearly ESC has been the main laboratory for mentoring over the last ten years. If there is an overall object of this essay it is precisely to distill and liberate a general concept of mentoring from that laboratory.

Mentoring in a Modern Behavioral Environment

American higher education is in a critical phase in its own evolution; infused with money and social status since the Second World War, the enormous growth of the university has generated a reaction within, the student movement of the 1960's. To the serious educator these two forces have compelled an examination of the structure of the modern university along with the foundations of education itself. A synthesis of these two forces is a way to articulate the educational possibilities within the social structure of the modern university. In examining the evolution of teaching strategies within this behavioral environment, mentoring emerges as one of the most exciting possibilities.

There is at least one mythical teacher/pupil relationship in Western mythology, mentoring, and it has a finite origin in the literature, Homer's Odyssey. Mentoring is not only a concept in the Odyssey, but Mentor appears as a mythical character on the same order as Odysseus or Athene. Mentor is Odysseus' boyhood companion whom he leaves behind in charge of the education and training of his son, Telemachus, during the Trojan War. Odysseus' absence lasted nineteen years so Mentor had enormous influence over Telemachus' development.

For our purposes, two observations are important in terms of Mentor's relationship with Telemachus. First, Mentor was a parent substitute. His function was to assume the role of Odysseus as a father, and Odysseus was everything the Greeks aspired to in an adult man: wise ruler, valiant fighter and strategist (he was called the sacker of cities), expert craftsperson, and even trickster. That this is a successful endeavor, we know from the developments in the Odyssey for we witness the passage of Telemachus into adulthood, and by the end of the book he is almost the equal of Odysseus himself. The modern definition of "mentoring" is thus "a wise and trusted counselor" (O.E.D.).

Second, this educational relationship was, by definition, aristocratic. In order to facilitate Telemachus's development, a one-to-one relationship was established whereby the teacher had only one pupil. Such a role was only possible with noble birth and an extensive estate, and these remained the conditions necessary for a one-to-one educational relationship until modern times.

Quite the opposite force is represented by the modern American university and its objective of democratic education, especially since the rapid evolutionary period following the Second World War. Democracy in education meant extending the liberating effects of a post-secondary education to every sector of society, mainly through expanding the scope and capacity of the modern university.

But the new functions and structure of the university presented a more complex environment within which the old teaching function had to evolve and adjust.

In his book, The University Teacher as Artist, Axelrod (1973) recognized that teaching styles in the modern university did not exist in a philosophical vacuum but were intimately related to the new structure and functions which had evolved. Utilizing a system theory analysis he was able to construct an accurate profile of the pivotal position the university plays in contemporary American society. Accordingly, the university is not just an educational institution; it is a supersystem, made up of interrelated and interdependent sub-systems. Faculty is in control of only one system, the degree system, which is the educational function the general public assumes is the only function of the university. But the university is also composed of systems functioning as, among other things, consulting agencies for business and all levels of government. In carrying out its new functions, the university has many times become a major employer in the community as well as serving as a major center for the arts and culture.

The teaching strategies used by contemporary faculties have evolved to some degree from philosophical speculation on educational theory, but mostly in response to the needs of the university to carry out its new functions as the problem solving and information processing agent of modern society. Faculties have been struggling to understand what had happened to the university and what their new position was within this structure. The main element which brought the need to understand these changes to the forefront was the student movement of the 1960's, which had, at its core, a positive humanistic statement demanding more relevant teaching forms in the university in order to make its democratic thrust more of a reality.

For the purposes of this essay the complex of environmental factors influencing or setting limits on a set of human behaviors will be designated a "behavioral environment." This concept was originally a cultural concept integrating all environmental influences, both physically and psychologically, to explain certain cultural behaviors. (Hallowell, 1955). The behavioral environment concept is appropriate here because the university supersystem is so broad, and the boundaries between it and other systems of the society are so diffuse, that one cannot clearly identify all the forces pressuring faculties to evolve. Using the concept emphasizes that it is a complex of forces, rather than some simple force, which has resulted in the teaching forms found in the university today.

In response to this behavioral environment Axelrod developed an analytical classification scheme to help faculties understand their role in the modern university as well as to give them some basis for analysing future trends in teaching. That analysis identifies three major forms of teaching and they are presented in a dichotomously branched taxonomy. The three forms are lecturing, didactic, and evocative teaching modes.

Lecturing is the most common form of university instruction today; it has a rich tradition and it has evolved to a fine art in the post World War II era. It combines the art of composition with the art of oral delivery, but it is not an art in the same sense of a teaching-artist because the lecturer does not actually know his students and lecturing does not require an interaction. It can be easily reduced to a video tape and played to a very large audience, as in instructional television, or played to no audience at all.

The rest of the teaching modes, evocative and didactic, do require interaction with students. However, in didactic modes independent inquiry on the part of the student is not required to complete the learning tasks set by the professor. The objectives of this mode include mastery of a definite body of information by memorization, or acquisition and mastery of specific motor kinetic skills by repetition and practice. Language instruction is the best example of this teaching mode. An excellent didactic teacher Axelrod describes as a craftsperson.

Evocative teaching modes are those which inquiry or discovery on the part of the student is required to successfully complete the learning tasks. That is, the mastery of the process of inquiry itself, by the student, is the object of the evocative teacher. Since this necessarily involves innovation, Axelrod designates an excellent evocative teacher as an artist.

Axelrod further breaks down the teacher-artist into specific prototypes, by examining the dominant relations between the three components of the teaching-learning process: the teacher, the learner, and the subject or skill. He explains how the teaching prototypes are derived through the dynamic interaction of these elements

> The relationships between these three elements--what we might call their "fit"--are extensively varied. Typically, one of the elements moves to the center of the teaching-learning process, and the other two elements are expected to accommodate themselves to its demands and requirements. In the university classroom, it is the teaching style of the professor that determines which two of the elements are expected to make the greatest amount of accommodation and which one remains relatively stable. (p. 12)

The three evocative prototypes derived from the variables are the subject-oriented teacher, the instructor-centered teacher, and the student-centered teacher. In the subject-oriented prototype the teacher believes that the subject is fixed in that the facts, principles and presentation of the material must not be tampered with, and that both teachers and students must accommodate themselves to this mode. The clearest example of this is the discipline-oriented courses where for instance, a professor of Art History believes that any course entitled "The French Impressionists" would cover the same material in the same presentation regardless of the professor who teaches the course, the type of students taking the course, or even the location of the college. An interaction with the students is required to achieve the objectives set by the subject-oriented teacher:

> Their teaching is organized around their desire to help students master principles, concepts, analytic tools, theories, applications, and relevant facts. It is characterized by two main

> features: an emphasis on cognitive knowledge, and the systematic coverage of a given segment of that knowledge in each of their courses. (p. 13)

In the instructor-centered prototype, the teacher believes that her/his unique approach to the subject matter makes inquiry possible and that students should use her/him as a model. Thus the individuality, humanity and personality of the professor is the dominant element of this style forcing both subject matter and students to adjust accordingly.

Finally there is the prototype of student-centered teaching which grew out of the need to fulfill the democratic extension of post-secondary education to all sectors of society. The philosophy employed in such a style argues that the educational process itself is endangered if it cannot be adapted to diverse student populations. Furthermore, the primary object of education is student development and that teachers and subject matter should be made flexible to meet the student's real needs, that of a growing human being. Within this classification Axelrod identifies two variants of this prototype: one where the limits of the student's personal development are confined to the development of the student's mind, and the other, where the personal development of the whole student is emphasized, especially in the non-intellectual dimension where growth or development is necessary or desired.

Much of the concept of the student-centered teacher role was embodied in the position paper, A Prospectus for a New University College, generated for the State University of New York in February, 1971, and which led to the formation of Empire State College a few months later. Much of the paper was an attempt to define a different philosophy of education by articulating a new teaching role (later to be called Mentoring), a new type of student to be served by the college, and an expanded definition of what the learning process encompassed.

In terms of the new faculty member, it was clear that the general qualities were in the minds of the framers; she/he was to be highly qualified in a broad variety of ways, while willing to experiment and to take personal risks to achieve the objectives of the college:

> The new University College...will recruit faculty members who demonstrate: competency in relevant scholarship or research; intellectual rigor in performance; productive competence in problem-solving in research or professional activities; creativities in the arts; in public policy development in community service, or other work experiences; excellence in motivating others to learn; integrity of commitment to perceived values; *and personal security to face risks of the unknown and change with some degree of self-esteem*. (*Prospectus*, p. 21. Italics mine)

As to the new students, the *Prospectus* clearly sought out student populations not adequately served by the large university systems. And finally, the *Prospectus* called for a new educational agreement between the college and the student, and spelled out the educational process that would take place given this new cooperative combination:

> The University College...will make the educational resources accessible to the student and guide and assist him in achieving an open process of learning. This process will place the responsibility for learning on the student in return for his freedom to pursue his education according to his individual needs and interests. (p. 5)
>
> He will learn for his own purposes and at his own pace within a community of his own choosing. (p. 7)
>
> On the personal side, the student will learn to undertake a sustained task over time, to explore, where possible, without the penalty of mistake. He will be encouraged to enjoy the play of learning experiences, freed from the kind of anxiety and tension that results in grimness and frustation. He will be enabled to see and understand his own emotions, to operate with a variety of language and symbol systems and to have a variety of direct creative aesthetic experiences. (p. 9)

When Empire State College opened its doors a few months later it presented the public with a new structure, an independent study program, to accomplish the educational objectives in the Prospectus. A faculty member, a mentor, was assigned to each student and the student and mentor worked on a one-to-one basis throughout the student's enrollment. Independent study meant that no classes were offered, but each set of studies was defined by a learning contract and followed by a narrative evaluation. The main task of independent study was that each student designed her/his own curriculum, called a degree program, in conjunction with a mentor and with the approval of a faculty committee. Such a new structure gave the mentors the flexibility they needed to deliver education to new populations of students, while students took new responsibilities in exchange for a degree that was individually suited to their own specific needs.

The mentor role was conceived of as highly experimental at the outset with the idea that over a period of time many of the specifics of the mentor/student relationship would be worked out. In terms of the overall responsibilities the role was conceived of as being holistic as in Axelrod's description of the student-centered teaching prototype.

Two years after Empire State College opened, its Office of Research and Evaluation (ORE) began a study of mentoring to understand and follow the evolution of this experimental role. The research began with interviews of all forty-six full time faculty members to get faculty opinion on a variety of issues. On the basis of the interviews a questionnaire was developed and administered in the Spring of 1974, and the results were used by A. Paul Bradley, Jr. in his publication, The Empire State College Mentor: An Emerging Role (1975). Bradley's works are the best examples of the literature category dealing with the mentor role directly.

The publication itself deals with a wide variety of questions, but the ones that are appropriate for this essay are the mentors' descriptions of the mentor role. According to Bradley, there are five major components of the role: advisement, student intellectual development, evaluation, professional development, and college development. The first three components will be looked at in more detail.

Although advisement of students is a role of most college faculties, in the one-to-one relationship of mentoring it emerges as a primary function. Bradley identifies three components: academic/vocational, personal, and ombudsmanship.

The only officially prescribed function of advisement in the mentor role is that of concern over student's academic and vocational plans. The study showed that students ask for counsel in "evaluating graduate school options, the current job situation, possible career orientation, and the like." Bradley also ended with the qualifier, "While not specifically trained for such advisement activities, mentors find that they are often the most accessible and concerned professionals who can listen and help." (p. 11)

The second part of advisement is what Bradley called "personal advisement," and he indicated that it was not always welcomed by mentors in the early years.

> Personal advisement can involve any number of things that may be disturbing students: family concerns, financial affairs, business affairs, health. While these matters many feel should not enter an academic relationship, mentors sometimes find it necessary to listen and talk with students about such concerns before serious academic discussions are possible. In fact, for some students, their personal concerns (e.g., role of women) may be closely intertwined with their intellectual interests. (p. 1

The third advisement function of the mentor role Bradley identified was that of ombudsmanship. Because the college had many locations throughout the state with primary administrative offices located at Saratoga Springs, New York, mentors had to untangle paper problems with financial aid, billing, and various academic forms. Bradley noted, "An important consequence of this type of mentor intervention is that the student confidence is gained. This in turn can improve the academic relationship." (p. 12)

Intellectual development is the second major function that mentors described of their role and Bradley breaks down that function into two further categories: mentor roles in degree program planning and in contract learning. As to degree program planning, the forms used by the College and the process required took several years to be developed, and the data in ORE's original study reflected a change in emphasis in this element. By 1974, degree program planning had become a major intellectual element, whereas before, contract learning was seen as the prime activity in intellectual development. Since then the College has taken more steps to emphasize and formalize the degree program planning process.

The mentor's role in the intellectual development of the student through the learning contract is the most time consuming, if not one of the most important components of the mentor's work day. Initially, mentors tended to describe their activities in two forms: the mentor as tutor, and the mentor as facilitator. . By tutoring a contract the mentor not only develops a specific set of learning activities, a sort of course description, but also acts as the tutor, the "primary teacher," the "direct instructor," or, as it has been more accurately described, the "primary resource person." Tutors do not teach at Empire State College, since it is the student's primary responsibility to teach herself/himself. Tutors answer questions, discuss content, direct to further resources, and sometimes control developments within a specific and limited study component. Tutors also evaluate the results of a contract which Bradley categorized separately from intellectual development.

In the mentor as facilitator role, the mentor retains his overview function of the student's long term educational objectives, and takes primary responsibility for the contract design and final evaluation, but generally contracts someone else to act as tutor for the specific contract. To underscore this primary responsibility, tutors always report back to the primary mentor and it is up to the mentor to make all academic judgments. Bradley noted the necessity for broader skills for this type of mentoring:

> Mentors having this style often reach across several disciplines and thus deal with a variety of student objectives and interests. They act as broker by helping students connect with resources rather than interceding for them. (p. 13)

Finally, Bradley identified evaluation as the third major role component of mentoring. Evaluation is further divided into group functions on various academic committees such as assessment of degree programs, academic review for graduation, etc. Secondly, and most importantly, are contract evaluations. At the end of every learning contract a narrative evaluation describing how well the student did in the contract must be filed in a formal document (the Contract Evaluation) in order for the student to receive credit for her/his new learnings. The evaluative comments normally follow an agreed upon criteria listed in the contract. The importance of this activity is seen in the fact that these documents monitor the student's progress in the program and form the basis of the student's transcript, along with a copy of the degree program.

This was not the end of Bradley's studies on mentoring for in 1978 he published a much broader study. This time he worked under the auspices of the Center for Individualized Education (CIE), located at Saratoga Springs, New York, and the study was expanded to cover many colleges all engaged in the independent study mode. Those colleges or programs ranged from the University Without Walls (University of Wisconsin) to the New College (University of Alabama). Since the new study enlarged the sphere of faculty activities in the ten schools studied, a new term was coined to cover a multiplicity of faculty titles; hence, the title of the report, The New Professional: A Report on Faculty in Individualized Education (1978).

When it came to describing the teaching strategies of the "new professionals," Bradley reorganized his thinking and expanded his categories to include a total of eight roles, or "personal models of behavior." He retained the original dichotomy of bifurcating the mentor role into two general groupings, tutor and facilitator. Also, the basic definitions were retained; tutors were those who "used themselves as primary learning resources" (p. 49), while facilitators were defined as faculty who helped "students tap and identify other resources" (p. 53). Evaluation, which in his 1975 publication was a separate category of intellectual development, became another one of the sub-categories, or styles, of either a tutor or facilitator. Thus the eight possible styles of the new professionals were serially described as: tutor/content; tutor/counselor; tutor/model; tutor/evaluator; facilitator/content; facilitator/experiential; facilitator/model; and facilitator/evaluator.

At this point a critical appraisal of Bradley's studies on mentoring is essential to understand some of the limitations embodied in his methodology. It was essential to break down mentoring into component parts so that he could develop a theory of "professional development" through stages, and this theory found its way into both the 1975 and the 1978 publications. However, Bradley did not begin from a holistic definition of mentoring, but rather, accepted the description "mentor" as it had been described administratively by Empire State College. There were many separate roles under this job description which did not conform with the concept of the mentor-counselor in the original Prospectus.

A major problem arose in the original breakdown of the mentor role into "tutor" and "facilitator" functions. These two variants were more derived from the internal structure of Empire State College (the original difference between mentoring at "Centers" and at "Units," now not much of a difference) than it represented distinct differences in the mentor/student relationship. This problem reached major proportions in The New Professional, for the original classification scheme, when expanded into eight combinations, created some styles that were so artificial as to be merely personality types.

A good example of this problem is a juxtaposition of the tutor/model style with the facilitator/model type to understand the difference between a tutor and a facilitator. The tutor/model is one of the most exciting descriptions of a mentor's possible roles and requires the mentor to have a clear sense of herself/himself.

> the tutor/model feels a powerful responsibility to display work habits and a learning style that students will emulate... tutor/models tend to use personal experiences as a guide in advisement, degree program planning and completion...With shared educational experiences, student conferences become especially meaningful. (p. 52)

The facilitator/model description seems to be a condition, not a style, and a condition not clearly differentiated from the above description.

> [The facilitator/model] seems to be able to work effectively with students when no one else can: drop-outs, anti-establishment types, etc...He/She invites them to share his/her lifestyle which is an interesting one...Rather than be a model of intellectualization, [the facilitator/model] tends to be a model of individualization. (p. 54)

In short, the classifications of the new professionals into different styles tends to be artificial in that it does not help one understand the essence of the mentor/student interaction.

A different methodology has been used by Rhoada Wald in her initial study of one phase of mentoring and may be characterized as looking at mentoring in its natural setting. Wald's paper is representative of the third type of literature, on specific aspects of non-traditional learning. Wald was studying how a learning contract gets formed and how individualized differences get incorporated into the academic process. She used systematic observation through audio and video taping of 33 conferences of the first mentor/student appointment, then described, coded and analysed the interaction, with reference to the literature of problem solving. (Wald, 1978)

Wald's research provided evidence to support four major trends in analysing the contract planning process. First, there seemed to be phases leading to contract design: an orientation phase whereby the student learns about the college and the mentor learns about the student; an identification of the student's objectives, both long term and short term; and the final design of the content based upon the information obtained in the previous phases. Second, in analysing the themes of discussion Wald found, "the strongest influence in planning the first contract was the personal history of the student. The consistency of this finding was striking" (p. 226). Third, specific contract objectives rather than long-range goals were emphasized. And fourth, in terms of distribution of control, the contract learning process is much more complex than the traditional teacher-centered structure: "The data indicated that both mentor and student made some key decisions, but in a context that is compatible with the assumptions underlying individualized education" (p. 227).

Wald's conclusions pointed to a major difference between the student-centered teacher and the traditional teacher, and called for more extensive research along these lines: "Several additional findings that evolved from the study represent potentially rich sources for future research and development. Analysis of the mentor role is a natural follow-up" (p. 231).

The Mentor/Student Relationship

In order to expand the concept of mentoring found in the literature and get a new and more holistic perspective of the mentor/student relationship some research was undertaken to obtain descriptions of what this relationship entails. A research strategy was selected in interviewing four mentors. The first qualification for the interview was that the mentor selected must have exhibited a consciousness of the mentor role and must have demonstrated an ability to articulate aspects of that role in a creative manner. Secondly, all four mentors selected were working for ESC's Center for Statewide Programs, the division that is composed of smaller units, for several reasons Bradley's studies excluded mentors from this division as this section of the College was new and it was experimentally untested. Since 1975, however, Statewide's experience has been solidified and provides a comprehensive view of mentoring. Statewide mentors exhibit all functions of the mentor role including the administrative functions of coordinating small units. The title, mentor/coordinator, is given to every mentor in the division, which distinguishes it from most faculty positions in the rest of the College. Because the role places emphasis on holistic and integrative aspects of the job, Statewide mentors have come to call their role, "primary mentoring." Primary mentoring, then, is a relationship in which one mentor is associated with one student throughout the student's matriculation at the College and functions in all capacities for that student. This is distinct from mentoring students only in the mentor's disciplinary field.

In terms of demographics a balance was struck in several categories. Two women and two men were interviewed with the two women having completed their Ph.D's whereas the men had not at the time of the interviews. The range of experience in the mentor role was two to eight years, with the more experienced mentors having come into the role when the College was still experimenting with different variations of the strategy. The academic competencies ranged from Cultural Studies, through Arts, Religion, Science, History, to Philosophy.

The design of the interviews was semi-structured in that certain core questions were asked of each mentor but much open-endedness was provided so that each would feel free to articulate those aspects of the relationship that s/he felt were essential and meaningful. The interviews lasted from 45 minutes to 3 hours, and three of the four were taped.

The tapes were then transcribed; quotes were identified and catalogued as part of the analytical process. Although a great deal of information and topics were discussed, only those aspects were used which met the objectives of the interviews. The object was to get different views on the mentor role, and to isolate and articulate the common elements. In refining the essence of the mentor/student interaction, the variables associated with mentoring at Empire State College had to be critically evaluated. Much of the information gathered formed a foundation for a much larger study on the philosophy of student-centered education.

One of the core questions that was asked of each mentor was how s/he evaluated her/himself in the mentoring role. All felt they were excellent mentors. One went further and said that one had to have a considerable amount of self-confidence in this job:

> I think I'm a good mentor. I think you need a lot of confidence in the fact that you are doing a good job. There are days where I come home and am very convinced that not only am I a bad mentor, but a terrible mentor, out there ruining lives. But that is not the dominant feeling. (Mentor Interview)

Another core question asked of all mentors was how they learned their jobs. This question was felt to be important because the answers reflected not only how variety and individual style were realized, but also how the broad limits of the job were transmitted to establish the territory of the behavioral environment.

All mentors reported that they got help being oriented to their jobs through the Dean and Associate Dean (academic dean) of the Center, through the use of a mentor handbook prepared by the Center, and especially through discussions with other faculty. A significant difference was that the two more experienced mentors did not have to face the impact of a full student load the first day, but usually started with one student and slowly built up to a mandated load.

The two mentors who were hired after 1975 interited full students loads the first day. This day's work might have included having student conferences, making further educational arrangements with adjunct faculty and tutors, beginning to formulate and write formal documents, and, most importantly, making critical judgments and decisions. For these mentors, their philosophy of education emerged in time, over a longer period of time than the more experienced mentors--(in most cases over a year)--while they were functioning and delivering services. In short, mentors received an orientation from a variety of sources, which combined with their diverse backgrounds of personal and academic experience, in developing a style of mentoring unique to each individual. This process took a long time, and a minimum of one year full time seemed to be the rule of thumb.

Results

The end result of this research was a more generalized and holistic concept of mentoring. Accordingly, the uniqueness of the mentor/student relationship was that it combined academic progress with personal growth and development. Although each mentor described this philosophy in different terms, and the descriptions emerged in different ways in the interviews, this synthesis was clearly what the mentors described as the core of the educational experience of mentoring. One quotation taken from one of the interviews, epitomizes the rest:

> Meaning in the education comes at the juncture of personal history and intellectual development...A mentor is more than a talking head. He is morally obliged to say to a student that intellectual growth is not just a function of years. Twenty years of doing something is just twenty years of doing something. But until reflected upon it does not mean anything...
>
> One becomes aware that one's own history isn't simply circumstance. There is purpose. Even if someone has experienced prejudice or discrimination, one can begin to see that structure and see that it isn't simply blind fate. It has reasons and causal realities...This is where education becomes pretty risky. (Mentor Interview)

Much of the rest of the interviews had to do with testing the other variables associated with mentoring at Empire State College and at other non-traditional colleges. Those variables included the demographics of the student population, the specific documents and processes adopted by ESC and associated with independent study (contract learning and narrative evaluations), and the issue of individualized curricula. The objective wa to determine which of the elements were essential to mentoring and which could be eliminated, making the definition more flexible. Also the analysis focussed on the elements which motivated a student to achieve academically and grow personally.

In terms of the student population ESC has found itself in somewhat of a puzzling situation. Growing out of the protests of the sixties for a more relevant and flexible educational structure, ESC now finds itself a "college of working adults." The average age of the students fluctuates around the ages 37-40 and a majority of the students elect to enroll one-half time. One of the reasons for this population is the College's flexible schedule (no classes) and its attention to granting college credit by evaluation for proven college-level learnings. The paradox is that the College is populated by the very students who initially would not be caught dead protesting a college curriculum. All the mentors questioned stated plainly that the uniqueness of the mentor/student experience was not restricted to adult populations although ESC's particular brand of mentoring had adapted very well to adults. Clearly it was felt that mentoring could adapt to any set of students who desire that type of education.

One of the other specific aspects of mentoring at Empire State College is individualized curricula. It is a requirement that every student design her/his own curriculum in consultation with a mentor to be approved by a faculty committee and the Office of the Vice-President of Academic Affairs. It was generally felt that this process had a very positive educational value in making the student intimately acquainted with the learning process (in that each student had to become an expert in her/his own curriculum), and, combined with credit by evaluation, it was a process that integrated "learnings" from work experience into the academic context. However, the individualized curriculum was not felt to be essential to mentoring.

Related to the concept of individualized curriculum was the idea of contract learning and narrative evaluations which have been associated with mentoring in an independent study context. Questions in the interviews were directed at determining the importance of these educational processes to the definition of mentoring derived from this study. Most of those interviewed initially made a distinction between the processes (contract learning and narrative evaluations) and the formal documents (Learning Contracts, Contract Evaluation, Learning Contract Outcome, Learning Contract Amendment, etc.). Most felt that contract learning served to externalize or articulate specific intellectual objectives and that the narrative evaluation made explicit how well the student met her/his objectives. Also a series of narrative evaluations documented very well the student's academic process. The use of these processes encourages the student to reflect upon the nature of academic learning.

> One of the things I do a lot of is encourage a lot of self-assessment, where a student at the end of a contract has to write his own assessment of what it is he learned. Students learn a lot trying to figure out what they learned...I do try to give them some sense of outcome, where [the learning] fits in their degree programs, where it fits in their interests. I try to make that clear...Narrative evaluations can be really hard to do. It's a lot easier to write down B+. (Mentor Interview)

However, it was clear that mentors do not generally address personal changes or developmental issues in either the contracts or the evaluations. The argument was made that a college transcript is not the place for comments on personal growth and development, and this is accepted generally throughout the College. However this attitude does not deny that personal growth and development are major components of learning in a student-centered environment:

> If there are serious developmental issues, I seldom put that into the formal document. It is certainly a part of the next conference with the student. Narrative evaluations can be just character references. I think the paper is very deceptive. You can't codify a lot of those elements. (Mentor Interview)

One final question was asked of the mentors which aimed at determining whether some of the effects of mentoring, especially the motivation to grow intellectually and personally, could be achieved in a lecture situation. Generally the answer was in the affirmative. Although professing and mentoring are very different teaching strategies, especially in terms of delivery of information, the same integration could be achieved elsewhere if the students were to get some vital individual attention. One mentor put it as follows:

> Mentoring is not all that different from regular teaching and counseling, especially if the professor is used to students wandering into her/his office on a regular basis and sitting down to chat about whatever is bothering her/him that week. Also there are informal relationships--for instance, a student who always stops you after class--usually they are looking for something else. A lot of times they are looking for some confirmation that is not on an exam. (Mentor Interview)

The integrated goals in holistic education are much more difficult to achieve than mere intellectual development, yet many students are attracted to a mentor/student relationship primarily because such a scheme incorporates academic development into one's personal life. The major effect on the student is increased motivation; students can generally see how each component enhances their own development. The mentors noted this effect on the students, and it had a positive effect on the mentor as well. The following statement pin-pointed this relationship:

> The motivation is so much higher when you think somebody cares. After reading many student questionnaires, and I was impressed at how often the students talked about the difference it made in his or her work to know that the mentor was genuinely interested. That they wanted them to succeed...made all the difference. (Mentor Interview)

In fact, it is the attitude or disposition toward caring which characterizes the mentor/student relationship and distinguishes it from the other modes of teaching. It is so central to this relationship that a detailed examination of what it is to care for an individual is examined here in more detail. Milton Mayeroff's study On Caring, provides a precise account of this relationship.

Mayeroff begins his study with a definition of what it is to care: "To care for another person, in the most significant sense, is to help him grow and actualize himself." (Mayeroff, 1971, p. 1) Caring then is not a goal, but a process in which growth is accomplished.

Growth in a caring relationship has many facets to it, but as Mayeroff defines it, there are components which involve intellectual development (learning, infusion of new ideas) as well as personal growth (knowing oneself, becoming responsible for one's life). The form and direction of the growth are determined by the individual who is being cared for (student) and are not imposed by the person caring (mentor). The growth is also self-actualizing. Mayeroff describes growth both in affective and in cognitive areas:

> (Affective areas). To help another person to grow is at least to help him care for something or someone apart from himself, and it involves encouraging him and assisting him to find and create areas of his own in which he is able to care. Also, it is to help that other person to come to care for himself, and by becoming responsive to his own need to care to become responsible for his own life. (p. 10-11)
>
> (Cognitive areas). Growing includes learning to the degree that one is able, where learning is to be thought of primarily as a recreation of one's own person through the integration of new experiences and ideas, rather than as mere addition of information and technique. I grow by becoming more self-determining, by choosing my own values and ideals grounded in my own experience, instead of either simply conforming to the prevailing values or compulsively rejecting them. (p. 11)

This elucidation of growth in a caring relationship could easily be a description of a student-centered education in Axelrod's world-view, or could have found its way into the Prospectus, cited earlier.

There is a close affinity between a student-centered educational relationship and one that is caring.

There are some major ingredients of caring which help illuminate individual aspects of the mentor/student relationship. We will examine four of those components which have a direct bearing on caring in education. Those four are knowing, patience, trust and courage.

Knowing may be the most important ingredient in caring, especiall in teaching, for it clearly distinguishes the mentor from other forms of professoring. The knowing mentor must be familiar with the student's world.

> To care for someone, I must know many things. I must know, for example, who the other is, what his powers and limitations are, what his needs are, and what is conducive to his growth; I must know how to respond to his needs, and what my own powers and limitations are. (Mayeroff, p. 13).

Mayeroff goes on to develop three aspects of knowing. First, explicit as opposed to implicit knowing: "To know something explicitly is to be unable to tell what we know...to know something implicitly is to be able to articulate it. We know more about a good friend than we can verbalize" (p. 14). Second, knowing that something is so as opposed to knowing how to do something: "A man may know much about the theory of teaching without being able to teach" (p. 14). This aspect of knowing shows the relationship between theory and practice and emphasizes that an integration of both is essential. Finally, there is the difference between knowing something directly and indirectly. In caring one knows the other directly: "The caring teacher, for example, directly knows his student as an individual: he experiences him as someone in his own right, and not as a stereotype or as a means for his own self-aggrandizement" (p. 14).

Patience is a very important ingredient in the process of caring because the process is of primary importance and because self-actualization and growth must take place within organic limits. "The growth of a significant idea can no more be forced than the growth of a flower or a child" (Mayeroff, p. 17). This aspect of caring was reflected in the Prospectus and emphasized that the student will learn "at his own pace."

Trust is an important element in the caring relationship and is essential for an educational relationship that ends in self-actualization. Basically the mentor trusts the student to find his own way and it involves major professional and personal risks, and the courage to take those risks: "The caring teacher who trusts his students to find their own way in pursuing their own projects grounds such trust by providing the students with assistance, encouragement, and exposure to relevant and stimulating experiences"(p. 22). Mayeroff also warns that the person who cares must have gone through a process of actualization in having the confidence to trust herself/himself: "But only the man who trusts himself to grow, who is not trying to force himself to be something he thinks he is supposed to be will be able to trust another to grow" (p. 22).

Courage is important in the relationship because in any relationship that involves change, some elements that are known must be relinquished in exchange for elements that are unknown. Such courage is informed by insight from past experiences and is sensitive to the present.

In education, then, a caring relationship involves many elements among which are knowing, patience, trust, and courage. The mentor (caring person) must have the confidence and knowledge to undertake such a venture and the student likewise must be able to be cared for. A mentor can not help a student develop personally if the student does not want it. Mentors must be flexible in handling a wide variety of students, and must be able to respond to each student's needs as they arise.

There is one other aspect of caring which creates a tension with the goals of modern education; in caring, the process (present) cannot be subordinated to the product (future). In modern education, tangible goal-oriented products (successful completion of a course, attainment of a high grade, receiving a degree) are often emphasized at the expense of the self-actualizing process.

If there is a goal in student-centered education it is to help foster the development of the individual. For many years it was felt that student-centered education meant modifying a standardized curriculum so each curriculum would be tailor-made for each student. Mentoring, however, means more than that; it is a unique relationship that aims at a synthesis of cognitive and affective growth to effect individualization. In some sense mentoring is not unlike parenting in that growth and individualization are the primary goals and parenthetically, is not essentially different from Mentor's role in the Odyssey. When the roles of parent and teacher are misunderstood, individualization is subverted:

> if a parent's primary concern is to mold a child, or in basically having a child remain dependent upon him, then the child with good reason feels basically uncared for because he realizes he is not perceived as an individual in his own right. (Mayeroff, p. 39)

Thus mentoring, when liberated from its association with all types of non-traditional education, can be defined as a one-to-one relationship which aims at personal as well as intellectual development and mediated by the principles of caring. In short, a mentor is a master of growth.

Mentoring the Hearing Impaired

Much of the impetus for the developments in student-centered education has focused around the need to adapt conditions surrounding the baccalaureate degree to the individual student, especially in populations not having been reached by traditional programs. Non-traditional programs of the late 60's and 70's saw as their mission to reach new populations of students, including those who were place-bound, time-bound, and those with handicapping conditions. As a part of this essay on mentoring, an investigation into specialized programs for the hearing-impaired resulted in the discovery of at least one program involving a mentor/student relationship where the student population was hearing impaired. That specialized program existed for a brief time (1977-1979) and was a consortium of two colleges, Empire State College, Metropolitan Center (Manhattan) and

Gallaudet College (Washington, D.C.) with the assistance of La Guardia Community College's Program for Deaf Adults (Long Island City, New York). According to the proposal submitted to Gallaudet's Center for Continuing Education for seed money, an ESC Vice-President noted:

> In keeping with the mission statements of both Empire State College and Gallaudet College, it is proposed that a cooperative program between the two schools be initiated to serve deaf students. This program, whose beginning location would be in New York City, would serve as a prototype model for the pedagogic techniques of teaching deaf adults in a non-residential baccalaureate program.
>
> It is suggested that the program begin in a modest fashion in order to achieve two ends: to ascertain the receptiveness and appropriateness of such a program; and, to search for external funds that would allow a full program to flourish. (Letter, Roger Trumbore to Thomas Mayes, September 23, 1977)

A formal agreement between Gallaudet and ESC was signed, and the Program for the Deaf was begun in November of 1977. A half-time mentor was hired (Kristine Beeman) who met the normal criteria for mentorial faculty and who was also hearing-impaired. ESC was to orient the new faculty member to the College's independent study program, to all aspects of coordinating that program, and to developing mentoring skills in a short time. La Guardia College provided some office space and much needed clerical and technical assistance. Gallaudet provided money to pay for the mentor's salary and provided many years' expertise in developing educational programs for the hearing impaired.

ESC's Program for the Deaf expired two years later and was slowly phased out of existence. In order to determine the weak elements in the program many documents were examined as well as interviews conducted with officials who were directly involved with the program: the Assistant Dean of the Metropolitan Center (Nancy Bunch) and Program Coordinator to La Gaurdia's Program for the Deaf (Glen Anderson).

Some weaknesses of the program were discovered in the investigation, but none of them had to do with any incompatibility between a hearing-impaired student population and the mentor/student relationship. First, the enrollment expectation was set too high too soon. A normal half load (15-18 student months/month) was expected, and when it did not materialize, gave the program an air of failure before it could become firmly established. Second, the hybrid role--mentor/coordinator--was too much for a part-time faculty member to absorb in a short period time. In addition to mentoring students, the role included recruitment, enrollment, providing support services and resources, financial aid counseling, and reporting to administrators on the condition of the program. What is difficult in the normal orientation of a mentor is doubly true for a mentor/coordinator in a specialized program: it was learned from the interviews that one cannot expect to feel comfortable in the role for at least one year, and this when one is working full time. Also, little time was scheduled by ESC to adapt the role of mentor/coordinator to these specialized conditions.

Third, the amount of support services needed to deliver such a program to a hearing-impaired population was severely underestimated. Aside from normal A.I. (Accessory Instruction) money, resources were needed such as a teletypewriter (TTY) and other communication equipment, clerical help who were proficient in sign language, interpreters to interface between hearing-impaired students and normally hearing tutors, etc.

Finally, a problem was encountered by the very nature of the program being non-traditional. As Dean Stevenson stated (it):

> In a real sense her [the mentor's] role is exploratory and developmental. Higher education in general has no idea how to effectively address deaf people's needs or even what the nature of those needs may be. Different from any other coordinator, Kris is charting new waters...In our Deaf Project we often are faced with surprises. For example, some of our deaf prospects are suspicious of the individualized model itself. Having never attended "traditional" college, they are not disaffected with it. For some, college learning must come dressed in ivy-covered lecture halls or it's not the "real thing." In a sense they desire what their deafness denies them. (Letter, John Stevenson to Roger Trumbore, May 10, 1978)

The above analysis indicates that there were problems in setting up a specialized program for the hearing-impaired in ESC's non-traditional setting, but it does not indicate that there is any inherent problem in mentoring the hearing-impaired using the concept of mentoring arrived at in this essay. This definition of mentoring emphasizes a specific educational relationship with specific objectives and principles. It is possible to envision mentoring a special population, such as the hearing-impaired, at a "traditional" institution, such as NTID.

A formal proposal to adapt a mentoring strategy to the NTID structure would require another complete project, and that project should be the product of several minds. What are presented here are some general thoughts on a proposed mentoring program at NTID with some consideration of how the mentorial interaction would benefit hearing-impaired students. It is one of many proposals that are possible given the mentoring characteristics developed in the previous sections.

The mentor role at NTID would involve at least three functions, although the functions would overlap since the role is holistic. They would include counseling activities both career and personal, academic and personal development through some individualized work for academic credit, and ombudsman functions. The continuity of the mentor/student relationship would be maintained from the student's initial enrollment through graduation.

Although a separate faculty category could be set up with a specialized mentoring function, it is strongly recommended that the existing faculty, professional staff and administrators voluntarily assume mentor roles in exchange for reduced workloads. Because a full mentoring load (i.e., 30 students) is exhausting, if loads were kept to a reasonable number (for example - 6), it is hoped that the rewards for the mentor would far outweigh the liabilities, and professional burnout could be avoided. It is very much better for the students to be able to choose mentors from a wide variety of backgrounds, possessing different skills, and representing diverse personalities. The college might also benefit from increased collegiality when teaching and non-teaching faculty, administrators and professional staff share a common, part-time, function. For many positions, this would initiate direct involvement with students.

Mentors would facilitate students' academic and personal development through periodic projects for academic credit, which may be administered through learning contracts. The particular subject of the developmental project would be up to the mentor and student but could reflect an increased range of learning activities. Individualized work with mentors might include work in remedial areas, advanced studies, additional communication skills, areas for which classes are not available, specialized subjects, and exploratory subjects. The mentor/student relationship would add additional flexibility not currently available in a curriculum as well as a sense that the student's individuality is the focus of development.

In addition to a feeling of individualization, the students would benefit from learning those very skills necessary for success in an adult life, from interpersonal relations to problem solving. Some of the day-to-day problems of the mentor involve sorting out bureaucratic problems and other general ombudsman-like activities. However, in mentoring this is a learning and sharing experience because the mentor and student have the responsibility to solve the problems together. These problem-solving situations are helpful in establishing a trusting, working relationship as well as developing the skills which are used constantly in adult life--becoming aware of how problems are solved and decisions are made.

One other aspect of facilitating personal growth through mentoring involves the student's becoming aware of and mastering the developmental process itself. That process begins with the question "What do I really want to do in my life?" and goes through various analytical phases. It involves setting goals in a realistic framework and articulating the steps necessary to reach those goals. Students must also learn how to recognize when they have achieved the goals they have set, how well they have done in terms of strengths and weaknesses, and how to set new goals. In short, students should learn all the elements of self-evaluation. An awareness of the process of growth would serve them well after they leave NTID for a larger world.

Because of the holistic nature of the role, mentors would have to "know" a great deal and would have to continue to refine many skills in order to facilitate student development. Mentors should be aware of many levels of education from the academic curricula of the college to the most recent studies which increase relevant knowledge. In fact all the studies in the Foundations Program, from computer-assisted instruction, to problem-solving/

decision-making, motivation, models of human development, locus of control, inductive/deductive processing, and cross-cultural adaptation, etc. are the kinds of studies a mentor needs in order to improve her/his skills.

But most important, a mentor needs to know as much as s/he can about the world of the hearing-imparied, for the relationship is dependent on the mentor being able to "enter the world of the student." More than just mastering various modes of communication, mentors must be open to a variety of information sources including being able to take the risks involved with learning from the student. In this way both partners in the mentor/student relationship are actually involved with learning, including learning from each other.

Conclusion

The reintroduction of the mentor role in higher education has been associated with the non-traditional movement, but in this essay we have made a distinction between mentoring in the general sense and the myriad of faculty roles linked to non-traditional structures. When mentoring is understood as a set of principles promoting the development of the whole student rather than the facilitator of a non-traditional structure, then it becomes a more flexible and useful teaching strategy.

Many difficulties would be encountered in adapting a mentor role to NTID's "traditional" program, but the most formidable barrier has already been overcome in entertaining the idea of a change. In democratizing the one-to-one educational relationship, it is the students who will benefit the most. Mentoring would enable hearing-impaired students to become more prepared to live a full life, integrated into a world that is, at least in the beginning, not made in their own image.

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Tutoring Special Students

Russell T. Osguthorpe

Tutoring Special Students

Qui docet discet (one who teaches learns)
Learning is a social act (Meiklejohn, 1882)

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Tutoring is one of the oldest forms of instruction known to society. As early as the first century A.D. Quintilian in his Institutio Oratoria described instructional settings where older children were tutoring younger children. Between the years of 1530 and 1550 additional accounts are given of tutoring programs initiated in Germany and by the Spanish Jesuits in the College of Lisbon (Paolitto, 1976). These programs emphasized the benefits that accrue to the tutors as well as the tutees. Student monitors teaching ten students in a classroom became a popular option in these early years.

In 1797 Andrew Bell, a Scotsman developed one of the first exportable tutoring systems (Bell, 1797). Bell had been asked by the British government to establish a school for orphans in Madras, India. Since Bell was not a professional educator, he broke from traditional patterns of British schools and created an elaborate educational system which was based on older students tutoring younger students. As the program matured, Bell noted that his classroom behavior problems decreased and that student academic progress accelerated. After Bell published his first account of the program in 1797, Joseph Lancaster, a British educator was intrigued by the system and began to disseminate it throughout the British isles and France (Laborde, 1815). By 1816 there were about 100,000 children being taught in England and Wales using the Bell-Lancaster system (Bell, 1817).

It is not completely clear why the popularity of the Bell-Lancaster system declined in later years. Some have suggested that educators began to be less satisfied with the quality of the instruction that untrained 8 or 9 year old tutors were able to deliver (Dures, 1971). Others have asserted that as the supply of professional educators grew and as they became more well organized, it was to their professional and financial advantage to dismiss unpaid, untrained student tutors (Allen, 1976). Another societal force which mitigated against the Bell-Lancaster system was the increasing tendency of schools toward self-contained classrooms where students were segregated according to age. As children were placed in these graded classrooms, it became less convenient to have older students helping the younger ones.

It was not until the mid 1900's that tutoring saw a rebirth in society. It was also not until this period that researcher's began to look seriously at tutoring and to measure its effects. By 1974 peer and cross-age tutoring became a common part of most school systems. Allen & Devin-Sheehan (1974) conducted a survey of 110 schools which showed that 31% of the schools had formal tutoring programs. An additional 25% of the schools reported having informal tutoring programs. Of all students surveyed, 77% said that they ask other students for help and 88% said that they work with other students on academic tasks.

Purposes of tutoring

At first glance it may seem that tutoring has a simple and singular purpose: to transfer new knowledge to the tutee. But the purposes and measured effects of tutoring are neither simple nor singular. Many investigators have been more interested in the benefits that come to tutors than to tutees. Bell, himself, was at least as impressed by the growth of his tutors as he was by the new knowledge transferred to other students. As early as the 1600's Joachim Fortius said:

> . . . if students wish to make progress, they should arrange to give lessons daily in the subjects which they are studying, even if they have to hire their pupils. (Gartner, Kohler and Riessman, 1971, pp.14-15)

This passage illustrates the philosophical basis for the many research studies which have focused on tutor growth as opposed to tutee growth. So the assumption that tutoring programs are established solely for the benefit of helping tutees learn new academic skills is a common misconception. It is equally incorrect to view tutoring as simply another teaching method, a technique for transmitting information. From their inception tutoring programs have been multi-faceted experiments in socialization. The first effect Bell noted in his program was the improvement in classroom behavior, not students' performance in a spelling bee, but their ability to attend and their willingness to help other students master the task at hand.

In this section studies will be reviewed which assess the effects of tutoring on both tutors and tutees in three broad areas: 1) academic performance, 2) personal/social adjustment and 3) moral development.

Academic Performance of Tutees

One of the most common purposes of tutoring is to improve the academic performance of both tutors and tutees. Paolitto (1976) likens this purpose to what Kohlberg and Mayer (1972) have termed the "cultural transmission" model of education. In this form of education the teacher or tutor is seen as a resource of knowledge to be dispensed to the unknowledgable students. The cultural transmission model assumes that the primary benefits of instruction will accrue to students and that only secondary benefits will accrue to teachers or tutors. The majority of studies investigating the effects of tutoring programs have been based on this philosophy.

Perhaps the most comprehensive study on tutoring was conducted by Susan Strait Hartley in 1977. Using the statistical methodology developed by Glass (1976), Hartley completed a meta-analysis comparing the effectiveness of tutoring with three other methods of instruction. A meta-analysis is an alternative way of reviewing a body of research. Most research review articles identify as many studies on a given topic as possible and then attempt to draw summary conclusions. Nearly half of all review articles in education fail to arrive at any firm conclusions (Osguthorpe and Johnson, 1980). It is interesting to note that the most recent review article on tutoring also fails to list any firm conclusions. In the conclusions section of the article the authors state:

> The preceding examination of the variables affecting tutoring outcomes is less than satisfying; few broad generalizations (other than that more research is necessary) can be made based on existing literature. . . Until research become(s) more systematic it will be impossible to draw valid generalizations and conclusions. (Devin-Sheehan, Feldman & Allen, 1976, p. 377)

The reason so many reviewers of research are so reluctant to state conclusions is because: 1) single studies often arrive at opposite conclusions and 2) most studies have methodological and procedural flaws which rend their conclusions suspect. Glass (1978), on the other hand, contends that since few perfect studies have ever been conducted, we should add statistical controls through secondary analysis procedures and then pool as many studies together as possible by coding each study's results into a common coding system. By including as many studies as possible from as many sources as possible (unpublished as well as published), it is argued that the real effects of a given treatment will become clear.

Hartley (1977) collected 153 studies on four different instructional methods for teaching math: 1) tutoring, 2) computer assisted instruction, 3) programmed instruction and 4) individual learning packets. In each study she computed the "effect size" of the treatment and then computed the average effect size for each treatment across all studies. An effect size is computed by subtracting the mean score of the control group from the mean score of the treatment group and then dividing by the standard deviation from the raw data:

$$\text{Effect size} = \frac{\text{mean of treatment - mean of control}}{\text{SD from raw data}}$$

For example, imagine a group of sixth grade students were tutoring a group of second grade students in math. The second graders who were tutored scored an average of 80 on a posttest and a control group of second graders scored an average of 70 on the same test. If the standard deviation of the raw data equaled 10, the effect size would be computed as follows.

$$\text{Effect Size} = \frac{80 - 70}{10} = \frac{10}{10} = 1.0$$

This would mean that students who were tutored performed one full standard deviation better than the students who were not tutored (the control group).

Combining the 73 effect sizes from studies on tutoring, Hartley found that the average effect size for tutoring was .6. This compared with .4 for C.A.I., .2 for individual learning packets and .1 for programmed instruction. In overall effect size tutoring was clearly the most effective form of individualized instruction. It is important to note that more traditional forms of group instruction were not included, but that control groups in many studies employed this form of instruction as a comparison method. Therefore, it can also be concluded that tutoring was superior to group instruction.

Hartley found further that while tutoring was the most effective method as a supplementary technique, it was fully three times more effective as a replacement technique. In other words, when students received math instruction through tutoring alone (with no formal reinforcement in group settings) it was three times more effective than if students received the instruction through Computer Assisted Instruction, Programmed Instruction, or Individual Learning Packets.

Since educators often say that it is the novelty of the new program that causes its success and not the program itself, Hartley also measured effect sizes for older vs. newer programs. She found that while all four types of instruction benefit somewhat by a novelty effect, tutoring is affected least. C.A.I. dropped in .234 in effect size when the novelty was absent, while tutoring only dropped .025 in effect size. This finding is especially significant to educational planners who want programs that will retain their effectiveness over long periods of time rather than decline once the newness fades.

While Hartley's study adds much to our understanding of tutoring and its effects, its one limitation was its inclusion of only the math content area. Even though Hartley was able to identify 29 studies examining tutoring in the math content area, there are greater numbers of tutoring studies in other content areas such as reading and language development. Critics could argue that since math is a more highly structured and easily measured content area, tutoring would be most effective there. Most researchers, however, have found equally strong effects in the reading content area. Harrison found that when low achievers were tutored in reading teachers had a much greater tendency to rank the students in the top 50% of their class (Harrison, 1976). Melaragno and Newmark (1968) found similar success with Mexican-American students. Osguthorpe (1976) investigated the effects of parents tutoring their own children in reading. Results again showed that tutored students performed significantly better than students in the comparison group.

Academic Performance of Tutors

Of equal interest to the learning gains of tutees is the academic growth of tutors. Many tutoring programs have aimed at the tutor more than the tutee. In fact, in two separate studies tutors gained more in reading skills than did the students they tutored (Hassinger & Via, 1969; McWharter and Levy, 1971). Unfortunately neither of these studies employed a control group for tutors, but the comparison between tutors and tutees is interesting in itself.

In a study with 7th and 8th grade students Houser (1974) found that tutors gained in reading skills significantly more than a control group. In a much larger study Strodtbeck and Granick (1972) found that tutors benefitted academically from their participation in the Youth Tutoring Youth program. Tutors improved their language skills (vocabulary development) significantly more than controls. The Youth Tutoring Youth program gained national recognition and by 1972 had been implemented in 450 schools. The initial objective of the project was to aid students attending inner city schools. Most of the students participating in the program were low achievers who had experienced serious difficulty with both learning and social adjustment.

In the meta-analysis study previously mentioned Hartley (1977) computed an effect size for tutors as well as tutees. In the comparison 68 effect sizes were included (50 for tutees and 18 for tutors). The interesting result indicated that tutors gained about as much from their participation (.58 mean effect size) as did tutees (.63 mean effect size). It is also interesting to note the ratio of effects measured for tutors as compared with tutees. Hartley found nearly three times as many effects measured for tutees as she did for tutors, but both groups were gaining about equally from the experience. Tutors' academic growth in this instance is of special significance because they were not currently studying the content they were tutoring, while many of the tutees were studying the content both in class and during tutoring. From available data it would appear that while investigators have been less eager to measure effects on tutors, there is nearly always a significant improvement in academic performance. These findings hold special significance for tutoring programs because tutor managers must communicate to parents of tutors the benefits that will come to their children as they engage in the tutoring process.

In the first comprehensive review of tutoring theory and programs Gartner, Kohler and Riessman (1971) concluded that two of the most stable and pervasive effects of tutoring were the improved academic performance of both tutors and tutees. Their conslusions were consistent with those of Hartley and with most of the individual investigators assessing the effects of tutoring.

Personal/Social Adjustment of Tutees

As early as 1588 Montaigne began to criticize the traditional teacher/student relationship saying that the authority of the teacher was often the greatest impairment to learning. In more modern terms it might be said that the teacher/student relationship is most often a parent/child type of relation ship rather than an adult/adult situation. Instead of searching on their own, students in the authoritative teacher's classroom usually wait to be told what to do and how to do it. This dependency on an authority figure can diminish students' ability to develop personally and socially. Sarbin (1976) in recounting his own experience as a tutee concluded that the single most important effect on him as a person was the relationship that he developed with his tutor. In other words, he learned something about himself (personal) and about friendship (social) by being tutored.

Jerome Bruner (1972) has made one of the strongest calls for students to tutor one another. He believes that the present educational system emphasizes competition and prohibits students from experiencing positive social growth. His solution is to provide students with opportunities to help one another, to be given responsibility to assist other students and to switch roles as tutors and tutees. In his own words, "I would strongly urge. . .that we use the system of student-assisted learning from the start in our schools" (Bruner, 1972, p. 63). By implementing such systems Bruner believes that our schools would become a "communal undertaking." One author has actually developed a system which he calls the "Tutorial Community" (Melaragno, 1976). By "community" he means that any successful tutoring program must be viewed as a society in miniature. The entire school and community must be involved in its development and execution. Each person involved must under stand specific roles and responsibilities in order to create the total tutorial community.

Perhaps the most obvious personal/social benefit for tutees comes through the opportunity that tutees have of modeling pro-social behaviors of the tutor. Bandura (1971) has demonstrated the power of modeling as a social-learning tool in a variety of settings. Hartup (1976) argues that modeling is the precise reason that cross-age tutoring is superior to peer or adult/child tutoring. His research indicates that young children admire older children and want to emulate them. Because of this admiration, Harteys suggest that young students will learn more academically and socially. Bell (1797) seemed to value this social growth as much as the academic growth of students. In his own words Bell said:

> By these means a few good boys, selected for the purpose, as teachers of the respective classes, form the whole school, teach their pupils to think rightly, and mixing in all the little amusements and diversions, secure them against the contagion of ill example, or the force of ill habits; and by seeing that they treat one another kindly, render their condition contented and happy (Allen, 1976, p. 9)

Personal/Social Adjustment of tutors

Most tutoring programs that have emphasized personal/social development have expected the major growth to occur with tutors. Coleman (1974) concluded that the only way for children to ultimately develop social maturity was to be given responsibility for some other student's growth and then to alternate roles. Coleman's arguments are parallel with those of Bruner (1972). A descriptive study which demonstrates empirically the bond between tutoring and social development was conducted by Feshbach (1976). In her series of studies she measured the effects of social class and ethnicity on the tutoring style employed. She found that there were marked differences among different social classes and ethnic groups in their personal tutoring techniques. For example, lower social class children were less apt to provide the tutee with positive feedback for correct answers. When children themselves have low self esteem it would appear that they have difficulty building someone elses self esteem.

Feshbach's data are important for two reasons. First, there is an indication that socialization and tutoring are closely connected. Second, she concludes that the techniques which are indicative of pro-social behavior can be trained. In other words, if students have low self-esteem and are generally negative around peers, perhaps the most effective way to help the students is by giving them responsibility for helping a younger student. It is assumed that a tutor training program would be offered to these students emphasizing pro-social behaviors.

Several studies have assessed tutors' growth in self-esteem. As these results are discussed it is interesting to keep in mind that in no instance was there formal direct instruction given on self-awareness or ego development. In other words, the studies cited in this section are not investigations of peer counseling (where the prime objective is personal development), but peer and cross-age tutoring (where the content covered is usually reading or math).

In their review of tutoring research and programs, Gartner, Kohler and Riessman (1971) concluded that tutors experience growth in self-esteem as well as socialization. Houser (1974) found that tutors' self-concept increased significantly more than control students. Strodtbeck, Ronchi and Hansell (1976) found that tutors' self-esteem increased when they participated in the Youth Tutoring Youth program, but the data were mixed. Certain studies showed that gains were not significant when compared to nontutor control students. Their conclusion was that while some investigators had advocated the tutoring role for all students (even very low self-esteem students), the research strongly indicated that the role of tutor can be highly stressful for low self-esteem students. The following table given by Strodtbeck, Ronchi and Hansell (1976, p. 215) illustrates the differential effects the role of tutor can have on tutors' self-esteem:

Table 1

Efficacy Score Change by Ego Development for tutors and Non-tutors

Ego Development	Tutors (n)	Non-Tutors (n)	Difference
High	.55 (29)	.00 (8)	.55
Medium	.13 (73)	.42 (33)	-.29
Low	.02 (79)	.63 (22)	-.61

The table demonstrates quite clearly that tutoring had a negative effect on low self-esteem tutors. The data indicates that those students would have been much better off-having not tutored.

The Strodtbeck et.al. data need to be highlighted and tempered at the same time. The results are noteworthy because they validate the possible negative effects of tutoring. It is difficult to identify other studies that produced warnings for tutorial system developers. The data must, however, be viewed with the understanding that the results apply to the NYC Youth Tutoring Youth program and may have little bearing on other programs which emphasize different training and management components. Strotbeck et.al., indicate themselves that if the tutoring environment were more highly structured and management support were more consistant, low self-esteem students would probably have a more positive experience.

Self-concept has not been the only personal/social skill measured in tutoring studies. Strodtbeck et.al. also found that attendance increased when students were asked to tutor. This indicates both the students' attitude toward the act of tutoring and their increased prosocial behavior. Most authors would suggest that the increased attendance was less a function of enjoying tutoring than it was the increased feeling of responsibility tutors acquire as they develop a close helping relationship with their tutee(s). The increase in average attendance is an operational measure of the social maturity benefits of tutoring suggested earlier by Coleman (1974) and Bruner (1972).

Moral Development of Tutors

One of the more recent emphases in tutoring research is the topic of moral development. Paolitto (1976), a student of Kohlberg's, made the most convincing case for tutoring as an enhancer of moral development. Some reviewers would include the studies on moral development as a subtopic under personal/social adjustment. The studies that have been conducted on tutoring and moral development have been designed in unique ways that set them apart from most other tutoring studies that have emphasized personal/social adjustment. First, most tutoring research that has assessed socialization has viewed it as a by-product of the act of tutoring. The moral development studies have been structured so that the central purpose is to enhance moral development. Most of the moral development studies have included training components for tutors which emphasize topics in decision making and Kohlberg's theoretical model (Kohlberg, 1969). Few of the personal/social studies included any such components. Second, the moral development studies have taken a much more cognitive (as opposed to behavioral) approach in which the students' moral reasoning capabilities have been targeted and measured.

Sullivan (1975) investigated the effects of tutoring on adolescents' moral and ego development. The author had adolescents participate in a year long practicum experience in which they were trained to tutor small groups of younger children in moral development topics. At the conclusion of the practicum experience tutors had improved in both moral and ego development.

Greenspan (1974) conducted one of the more carefully conceptualized studies on moral development and tutoring. She outlined four areas of emphasis and outcome that a tutoring program should include: 1) intellectual development, 2) moral development, 3) identity formation, 4) interpersonal development. In her research rationale Greenspan emphasized role-taking as the tutoring activity which should theoretically have the most profound effect on each of the four areas. Thus, the role of tutee again became deemphasized and the program objectives focused more directly on tutors. Greenspan found that tutors experienced significant growth in cognitive understanding but did not evidence any change in ego development.

Atkins (1972) also found that tutors improved in their moral judgements but showed no growth in ego development. Both Greenspan and Atkins investigated the effects of tutoring on adolescents, a period in life when identity and personal adjustment are unstable (Erikson, 1965). Their results, along with Sullivan's indicate that tutoring can have significant positive effects on adolescent tutors' moral development. Their failure to obtain significant growth in ego development could be due to the short duration of their studies.

Implications For Special Students

In preceding sections of this review it has been suggested that tutoring can be expected to elicit improvements in three primary areas of human development: 1) Academic Performance, 2) Personal/Social Adjustment, and 3) Moral Development. In this section each purpose will be discussed as it relates to the needs of special students. Included in the definition of "special students" will be all handicapped and gifted students. It is important to note that the research on tutoring with special students is limited to a few studies and articles. Most of these articles describe tutoring programs rather than report experimental data on their effectiveness. Paolitto (1976) called for an increased effort in researching the effects of tutoring on special students.

Academic Performance of Special Students

Most handicapped students experience academic difficulty. Those students with serious language development problems seem to experience the most difficulty. Walter (1978) describes a set of data that clearly demonstrate hearing-impaired students' problems with language when compared with normally-hearing peers. Learning disabled students by definition must be performing significantly below grade level before receiving any special services. Mentally handicapped students also have serious learning problems when compared with non-handicapped peers.

The academic performance gap between most handicapped students and their non-handicapped peers is well documented. The implications for tutoring are not quite so apparent. Some leaders in special education would discourage cross-age or peer tutoring because they believe the student may be short changed. A recent meeting of the executive committee of the Alexander Graham Bell Association for the Deaf passed a resolution that hearing-impaired students should not be placed in the regular classroom unless they can benefit from direct (teacher initiated) instruction (Nix, Note 1). In other words, the Association is saying that the best and most effective method of instruction is from a professional teacher and that additional support service personnel (tutors, interpreters) detract from or dilute this teacher directed instruction.

Few of the critics of tutoring for special students have considered the potential benefits of the special student taking the role of the tutor. Most assume that the handicapped student will always be the tutee. Since the available data on tutoring with non-handicapped students indicates that tutors usually learn as much about the topic they are tutoring as do the tutees, careful consideration should be given to training handicapped students as tutors and then measuring the effects on their academic performance. Since many of the previously mentioned studies have used disadvantaged students as tutors and tutees, there is every indication that handicapped students would benefit by being cross-age or peer tutors.

There is also some indication that tutoring would benefit gifted as well as handicapped students. Hartley, in her meta-analysis study computed predicted effect sizes for tutoring for both high and low ability students in second, fifth and eleventh grades. The results showed that high ability students had slightly larger effect sizes across all three grade levels. This means that high ability or gifted students who tutor or are tutored perform significantly better on the topic tutored than gifted children who do not particpate. Several interpretations of these data are possible. First, it may be that while tutoring is effective for low achievers, the individualization makes it even more effective for gifted students. Second, as with the Strodtbeck, et. al. data on self-concept, gifted students are more comfortable, less threatened in the tutoring situation and therefore, gain more from the experience.

Personal/Social Adjustment of Special Students

Special students often have increased problems in personal and social adjustment. With hearing-impaired students there is a general consensus that they have more difficulty with socialization than do their normally hearing peers (Bishop, White, and Emerton, Note 3; Emerton, Hurwitz and Bishop, Note 4).

These social difficulties seem to have roots in cultural differences as well as experiential deprivation caused by the sensory impairment. There is less agreement on the actual level of self-esteem held by hearing-impaired students. In a recent review of the literature on self-concept and deafness, Garrison and Tesch (1978) found that while most researchers had previously agreed that hearing-impaired students had lower self-esteem than their normally hearing peers, the apparent cause of the discrepancies was the inability of hearing impaired students to understand the test items on the self-concept instrument.

If it is true that hearing-impaired students have self-cncepts that are similar to those of the normally hearing population, there are still strong implications for the design of tutoring programs. Since Strodtbeck found that students with extremely low self-concepts should not be assigned as tutors, previous data on hearing-impaired students would suggest that their low self-esteem might prohibit them from benefitting from the tutoring role. Garrison and Tesch's data, on the other hand, indicates that hearing impaired students could be expected to benefit (in ego development) from the tutoring role on about the same level as normally hearing students. It is important to note at this point that students with high, medium and low self-esteem can be found at all levels of academic performance. In other words, it has been demonstrated that self-esteem is not a function of academic performance (Quinn, 1978). Therefore, gifted students as well as low achievers and handicapped students should receive similar benefits in self-esteem from the tutoring experience.

Moral Development and Special Students

Few studies have investigated the moral development of special students. DeCaro and Emerson (Note 5) conducted a study in which they measured the moral reasoning capabilities of young adult hearing-impaired students. They used Kohlberg's conceptual framework and compared hearing-impaired students' stages of moral reasoning with the stages of the non-handicapped population measured by Kohlberg (1969). Their results indicated that hearing-impaired students function on a lower level of moral development than do normally hearing people. One criticism that might be waged at the study is the possibility that the scores could be depressed because of the heavy dependence on language in the administration of the moral dilemmas instrument. In this case, however, it would appear that the investigators took adequate precautions to make certain that hearing-impaired students understood the task items. They also attempted to control for the possibility that the test examiner might misinterpret the students' responses. Because of these controls, it must be assumed at this point that hearing-impaired students have more difficulty with moral judgements than does the normally hearing population.

One of Paolitto's main points in her review of cross-age tutoring is the potential benefits in moral development that can come from being a tutor. Schools have traditionally paid much more attention to how students' academic performance might be improved than they have with how students' social and moral development could be enhanced. There are few, however, that would argue that schools are solely for teaching students how to read and write. Schools are where students learn to behave in groups and organizations. Schools are where students learn to deal with authority and personal responsibility. But most schools have no formal curriculum in social/moral reasoning; and perhaps they shouldn't. Perhaps socialization and moral reasoning are best enhanced by structuring the environment so that students are given opportunities to accept responsibility and make decisions that affect not only themselves but other students as well. Several researchers both in sociology and in education feel that one of those opportunities is tutoring (Coleman, 1974; Bruner, 1972; Atkins, 1972; Greenspan, 1974; Sullivan, 1975).

If being a tutor is beneficial for the moral development of individuals, it should be even more beneficial for populations which have extra difficulty in moral reasoning. This statement must be tempered by the fact that tutoring involves decision making and if some special students have poor decision making skills, the task of tutoring may add too much stress for it to be beneficial. Just as low self-esteem students often do not benefit from certain tutoring experiences, students low in moral reasoning may also have problems as tutors.

Types of Tutoring

No review of tutoring would be complete without a discussion of the major types of tutoring that are presently in use. In this section each of the delivery systems that are used in tutoring programs will be discussed with implications for special students. No attempt will be made to describe all of the various tutoring programs that have been or are presently in use. For a more complete description of these programs, see Allen (1976) or Devin-Sheehan, Feldman and Allen (1976).

Adult-child Tutoring

One of the earliest forms of tutoring was designed around the mentorstudent model. This type of tutoring was analogous to a teacher (authority figure) in a classroom with only one student. In the eighteenth century most rich children had private tutors. J. M. R. Lenz in 1771 even wrote a play called The Tutor in which he strongly criticized the institution of private tutors (Yuill, 1972). The present rationale for using an adultchild delivery system is based on two points: 1) tutors need less training and 2) tutors need less supervision. They need less training because they are carefully selected for specific purposes. An adult might be selected to tutor physics or chemistry, who has a college degree in one of those areas. Adults need less supervision than younger tutors because they supposedly are more capable of accepting responsibility and making decisions. These adults might be community volunteers (senior citizens, parents), paid paraprofessionals (teaching assistants in post-secondary settings or teacher aides in elementary and secondary grades) or paid professionals (remedial reading teachers, resource teachers, learning disabilities teachers, teachers of gifted students).

In a study assessing the effects of parents tutoring their own low achieving children, Osguthorpe (1976) found that students made significant gains in reading skills. Perhaps more important were the findings regarding the effects of tutoring on the parent-child relationship. The majority (73%) of parents felt that the eight week tutoring experience had actually improved their relationship with their child. Some parents saw the program as having no effect on their relationship (27%), while none of the parents perceived that tutoring their own child put a strain on their relationship.

Gallagher (1960) reported success with an adult tutoring program for severely brain-injured students. Among his conclusions are that: 1) mentally handicapped students showed significant improvement in intellectual development and verbal skills, 2) mentally handicapped students showed increased ability to pay attention, 3) when tutoring ceased, students' growth regressed or remained stagnant. Gallagher's results have strong implications for the types of instructional methodology we use with mentally handicapped students. From his data it would appear that even students with severe mental deficiencies benefit more from tutoring than from more traditional group instruction.

Several investigators have reported the use of adult tutors with hearing-impaired students. Holcomb and Corbett (1977) suggest the use of interpreters as tutors for younger deaf students. The rationale is that the interpreter is in the classroom with the hearing-impaired student and can become a dual-role support person. Some professional educators of hearing-impaired students argue that such a system can be dangerous because the interpreter may be unskilled in the basic techniques of tutoring (Larsen, Note 6).

Several authors have recommended the use of adult tutors with hearing-impaired students for the enhancement of communications skills (B. E. S. E., 1971; Bowman, 1973; Northcott, 1972). While there is documentation that hearing-impaired students are being tutored by adult tutors, there is little research evidence to suggest the effects of these tutoring programs.

On a post-secondary level jones and Murphy (1972) suggest the use of community adult tutors who are expert in a variety of needed college subjects. These tutors are paid professionals and are expected to possess or develop the needed communications skills that will allow them to interact effectively with hearing-impaired students.

Peer Tutoring

Peer tutoring is much more analogous to cross-age tutoring than to the adult-child delivery system. In a peer tutoring situation roles can be switched. The tutor can become the tutee and the tutee the tutor. Tutors are seen less as authority figures than they are as friends. In the adult-child system the young tutee can never comfortably trade roles and tutor the adult. The adult always knows more (or is perceived as knowing more) and so the tutee is forced to play the more passive, non decision-making role as the receiver of help and instruction. Peer tutoring by its very nature is different. The tutor is viewed more as an equal, someone who may know more than the tutee about the tutored topic but not about everything. Peer tutoring is the natural extension of the cross-age system. As people reach a certain level of physical maturity, age is no longer equated with knowledge and the benefits of the tutor being older than the tutee seem to disappear. It is clear, however, from the theory of transactional analysis that people can play the parent or child role at almost any age. Peer tutoring to be most effective assumes that the tutor and tutee establish an adult-adult relationship.

There are several accounts of peer tutoring used with special students. Wagner (1972) trained mentally handicapped students as tutors for other mentally handicapped students. Although the training required was extensive, the effects were judged as being worth the effort. Both tutors and tutees demonstrated significant improvements from their participation in the program. In another series of articles a program is described which was developed at the National Technical Institute for the Deaf, which relies on normally-hearing peers as tutors and note-takers (Osguthorpe and Whitehead, 1979; Osguthorpe, Note 7; Hurwitz and Osguthorpe, Note 8; Wilson, Note 9). This program trains normally-hearing college students to tutor and take notes for hearing-impaired college students enrolled in regular classrooms. The data collected on the program indicate that tutors are viewed as having positive effects by both students and faculty. There is some indication, however, that hearing-impaired students who are performing well in the classroom are those most likely to avail themselves of the tutoring service. Guides for both tutor/notetakers and program managers provide guidelines for implementing this peer program (Osguthorpe, 1980; Osguthorpe, Wilson, Goldmann and Panara, 1980).

It is important to note at this point that peer tutoring with special students can imply two different systems. In the N.T.I.D. system normally-hearing students are the tutors. In the system described for mentally handicapped students non-handicapped students were not involved. In each case benefits derive to participants, but the benefits are different. While the N.T.I.D. program encourages integration (as do other programs, Bitter, 1973), the program with the mentally handicapped allows the students themselves to play the role of tutor rather than tutee only.

Cross-age Tutoring

Cross-age tutoring has advantages over both peer and adult-child tutoring. First, it maximizes the benefits of age perceptions among children. Because younger children admire and want to emulate older children, they feel honored to be tutored by older children. Second, it increases the integration of ages in the school. This can promote more behavior modeling, not just from the tutee but from other students who observe the tutor. The tutor's behavior says to all younger students that they might also expect to take the tutoring responsibility as they get older.

There are two basic forms of cross-age tutoring: 1) matched students and 2) sibling tutoring. Cicerelli (1972) found that students tutored by older siblings performed better then did students who were simply placed with a regular cross-age tutor. His data also indicated, however, that only older sisters were superior to regular tutors. There was no difference for older brothers when compared with regular tutors.

Unfortunately there has been little, if any, systematic data gathered on cross-age tutoring systems with special students. In one isolated case a non-handicapped sixth grade girl has tutored a mainstreamed first grade, Down's Syndrome child. The tutor worked with the child on a daily basis during the entire school year on reading skills. At the end of the school year the child was reading on a 1.6 grade level (Monson, Note 7). While there were no controls and, therefore no way to determine the extent to which the gains were due to tutoring, it is interesting that the child made so much progress and that the school system assigned a cross-age tutor to a child with a severe mental handicap.

Discussion and Conclusions

Table 2 illustrates the types of tutoring discussed in the previous section and depicts the relationship between type and the purposes that might be acomplished by each delivery system. Integration was included as a purpose not because researchers have previously measured the effects of tutoring on integration, but because it has been expressed as a purpose in certain cases where tutoring programs have been implemented with handicapped students. The purpose of the table is to amplify the potential effects that can be expected from the various forms of tutoring. The table is not designed to condone one form of tutoring over another or to suggest that only one form of tutoring is effective. Those who design tutoring programs must make the value judgements that determine the primary and secondary purposes of a given program.

Table 2

The primary potential effects of each major tutoring type according to broad tutoring purposes.

Types of Tutoring

	Adult-Child		Peer		Cross-age	
	H.I. Tutor	N.H. Tutor	H.I. Tutor	N.H. Tutor	H.I. Tutor	N.H. Tutor
Academic Performance	X	X	X	X	X	X
Personal/Social			X	(X)	X	(X)
Moral Development			X		X	
Integration		(X)	(X)	X	(X)	X

H.I. = Hearing-impaired

N.H. = Normally hearing

It can be seen in Table 2 that the adult tutor should be expected to fill only the purpose of academic improvement. There may be instances when a normally hearing adult tutor could be said to enhance integration, but not in the truest sense of the word. Because the hearing-impaired student cannot reverse tutoring roles with the adult tutor, it is unlikely that personal/social or moral development will be affected. Supporters of the adult-child method of tutoring might agree that because the adult possesses a higher level of content expertise, the tutee will learn more from the adult than from a cross-age or peer tutor. Hartley (1977), however, found that cross-age tutoring produced greater academic growth (effect size = .793) than either peer (effect size = .522) or adult (effect size = .537). These figures were obtained across all ages of tutees in elementary and secondary schools.

It is important to note that these data did not include post secondary students, nor severely handicapped students. A case could still be made for using skilled adult tutors with young hearing-impaired children whose communications skills preclude them from meaningful interaction with normally-hearing children. Older hearing-impaired children might, however, still be an effective alternative.

Peer and cross-age tutoring fulfill a broader range of purposes than does the adult-child system. Table 2 indicates that both systems could be designed to meet three tutoring purposes. In each case it is assumed that the hearing-impaired tutor might be asked to tutor both normally hearing and hearing-impaired students. Only then would the hearing-impaired tutor be able to increase integration. The normally hearing tutor would also be likely to affect personal/social growth less than when the hearing-impaired student assumed the role of tutor. The normally hearing tutor could be a social role model but could not provide the tutee with the responsibility and decision-making characteristics that come through playing the role of tutor.

While peer and cross-age tutoring appear to have several advantages over the adult-child system, there are some disadvantages that must be considered

First, the adult-child system requires much less training and supervision. In situations where the prime goal of a program is to effect academic growth and where complex content knowledge is required, adult tutors could be the best option. Second, there is a selection advantage to adult tutors in many settings. Since adults are hired, they can be carefully selected and matched with the most appropriate student. Peer and cross-age tutors are more difficult to select, especially if parents prefer that their hearing-impaired child not spend time tutoring another who seems to need instruction less than the hearing-impaired child.

There are several broad conclusions that can be drawn from the existing research on tutoring.

1. Tutoring is one of the most effective methods of instruction available. As an educational technique it is more effective than large group instruction, computer assisted instruction, programed texts or individualized learning packets. It allows students to move through a given topic of instruction at their own pace with highly adaptable strategy, sequence and content tailored to their unique needs as a learner. No other form of mechanized or printed instruction offers a fraction of the flexibility of a human tutor.
2. When students act as tutors, there is strong indication that they can improve in their own self-esteem, if they enter the tutoring situation with ample ego strength or have highly adequate training and supervision.
3. When students act as tutors they can improve their social behaviors and adjustment. If they have had attendance problems, their attendance should increase. If they have had behavioral (attention) problems, their ability to attend should increase.

4. When students act as tutors and the program focuses on moral development, tutors can enhance their own ability to solve moral issues. Their decision-making skills should increase and allow them to reach higher stages of moral reasoning.

Drawing upon these conclusions and the previous research cited, the following implications arise for special students and hearing-impaired students in particular:

1. Special students stand to gain most from tutoring. They not only have problems in academic performance, but often evidence difficulty in the areas of personal/social adjustment and moral development.
2. Of all special students, hearing-impaired students have unique characteristics which should allow them to benefit most from tutoring and being tutored. Since tutoring is in essence a communications exercise, hearing-impaired students should be able to enhance their own level of receptive and expressive communications skills by engaging in the roles of tutor and tutee.
3. Providing special students opportunities to tutor other students should help students to increase their own sense of independence. As special students go through school programs they are typically the recipients of extra services rather than the providers of service themselves. Tutoring offers a unique situation for the hearing-impaired student to become a support service provider to peers or younger students.

Recommendations

If hearing-impaired students are to receive the benefits from tutoring that have been demonstrated with the general population, efforts must be greatly increased to design tutoring programs and research studies with hearing-impaired students. At present no systematic data has been gathered on a cross-age system with hearing-impaired students. Such systems could be designed in both self-contained programs, as well as mainstreamed settings. Data need to be collected on the precise effects of hearing-impaired students tutoring each other and hearing-impaired students tutoring normally hearing students.

As studies are designed to assess the effects of cross-age and peer tutoring with hearing-impaired students, the following considerations should be kept in mind:

1. A comparison group of students who do not receive the treatment should be selected before the project is begun. One of the most common flaws in tutoring research has been the lack of any control groups. This usually leaves researchers with pre-post gain scores as their sole criterion to determine effects. These gain scores are not adequate for drawing any experimental conclusions, unless similar scores were obtained from a group of students who did not receive the tutoring.
2. Written tests should be used only when appropriate. Since hearing-impaired students often misinterpret test items, alternate methods of measurement (structured interviews, observation) should be employed.
3. Studies should be designed to answer multiple questions. If a program has multiple purposes, measurement techniques should be developed that will assess each of those purposes. Many research studies in the past have failed to find many of the effects of their programs because they failed to measure anything but academic growth.

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Summary of Competency-Based Education, Mastery Learning and Individualization and Their Implications for the Foundations Program

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INTRODUCTION AND PROBLEM DEFINITION

This paper summarizes the major characteristics of Competency-based Education, Mastery Learning and Individualization; and explores their implications for the Foundations Program.

It is worthwhile to put the term "implications" in perspective. Strictly speaking, the concepts reviewed have no implications inherent in themselves. Implications emerge only from a process of relating a concept or event to one's own problem structure or situation. That fact sets the tone of this paper. In order to explore implications, one must first determine the problem perspective of the Foundations Program and find out whether the concepts reviewed are related to those problems at all, and if so, what kinds of alternatives they suggest.

Definition of the "Problem"

The effort to design the Foundations Program was initiated from three basic problems. Restated as objectives they are:

To better prepare students to enter a major.
To better prepare them to choose a major.
To facilitate changes in major without extensive cost
in time and credit.

These problems were identified and reviewed in a background paper by Bishop, *et al.*, (1979). They represent the basic perspective to which all "implications" for the Foundations Program are to be referred.

Rather than take these needs at face value and design a program with more work in basic skills and career decision-making, program administrators attempted to find out if there were more fundamental variables at work. They went to administration and faculty and asked them to give examples of problems associated with the basic three. It was an attempt to distinguish symptoms from causes, and define factors associated with, or causally related to the lack of student preparation in prerequisite skills and inability to make a stable choice of majors. The results were condensed to sixteen problem areas; some of which were determined to be beyond the scope of the Foundations Program; i.e., they were matters of overall NTID policy. As a result of this effort, a series of papers were commissioned, of which this is one.

The Sixteen Subproblems

The list of subproblems identified by administration and faculty are listed below. An (N) following the statement indicates that it is not considered a responsibility of the Foundations Program.

1. Students have a limited knowledge base and frequently have preconceived notions regarding careers and majors.
2. Students have a limited knowledge of self, e.g.
    a. strengths/weaknesses regarding career clusters
    b. values system
    c. interests
3. Our students use unsophisticated processes for decision-making.
4. Our students lack a repertoire of coping skills.
5. Our students possess an inadequate knowledge base regarding cultures and their development.
6. An NTID student's sense of purpose and identity emanates primarily from affiliation with a major.
7. There is no centralized body which reviews and monitors an individual student's flow as well as aggregate student flow.(N)
8. We lack an institutional definition of aberrant student flow. (N)

9. We are unable to provide appropriate experiences for students who fall in the different cells of the matrix:

	Has Necessary Skills for Major	Does Not Have Necessary Skills for Major
Knows what major he/she wants and it is an NTID/RIT major.		
Knows what major he/she wants and it is not offered at NTID/RIT.		
Does not know what major he/she wants.		

10. Students are forced to choose a career direction prior to being ready and able to do so.

11. Students lose an unacceptable amount of time and credit in transferring from major to major.

12. There is a gap between student's entry abilities and the criteria for entry into majors.

13. There is a lack of a systematic process for assessing a learner's strengths and weaknesses regarding majors and for transmitting such information to the learner and the appropriate administrative authority regarding the major.

14. There is insufficient time to develop process skills and content mastery prior to the student's entry to a major.

15. We lack multiple entry points to NTID and to majors.

16. We lack specified institutional, departmental and major requirements for institutional curricular offerings and for certification of students. (N)

Interviews with NTID Staff and Faculty

In addition to the above definition of the problem, interviews with NTID staff and faculty were conducted for approximately two days, primarily in group meetings. The purpose of the interviews was to compensate for this investigator's lack of experience with the hearing impaired, and to determine what was known by the staff about "what worked and what didn't" with hearing impaired students.

The interviews were taped, replayed and analyzed later. As will be seen, there was some anxiety on the part of the staff toward the interviews and some misinterpretation regarding their intention. In order to get a free flow of ideas, it was necessary to assure participants that the tapes would be for personal use. That assurance was honored by both the investigator and administration.

While discussion during the interviews tended to confirm that the sixteen problem areas were widely recognized, another class of problems emerged. These deal with the possible interpretation of such concepts as CBE and Individualization, and anticipation of problems in their use. Some of the comments dealt with management style, instructional support, and personnel; all of which have been major problems in implementation of CBE and the other concepts. Most participants wanted their views considered, but were hesitant about revealing their identity. For example, several comments were made similar to "I may not be here next week for saying this, but..." Therefore, without identifying participants, faculty input will be inserted into the analysis where appropriate.

CHAPTER TWO

SUMMARY AND GENERAL ANALYSIS OF CONCEPTS REVIEWED

Before analyzing the implications for NTID of Competency-based Education, Mastery Learning and Individualization, it is useful to summarize their major characteristics, and place them in a framework for comparison (Table 1); both to each other, and in reference to some notion of overall system requirements.

Competency-based Education is an ill-defined composite of concepts and practices, many of which are found in Mastery Learning and some forms of Individualization I. The single characteristic which distinguishes it from other concepts is the derivation of curriculum from analysis of competencies needed in social roles. It tends to be dominated by the premises of the behavioral objectives movement.

Mastery Learning is most accurately described as a philosophy that all or most students can master what is taught in schools. It is formally shaped by the philosophy and research of Bloom (1976) and his following. As a strategy, the practice of Mastery Learning has so far been comparable to what has been called Individually Responsive Instruction (IRI). It uses traditional group methods of instruction, evaluates results, and responds to students who failed to meet the objectives of instruction. However, Mastery Learning must be considered open-ended in terms of strategy, because its followers are research-oriented and constantly adapt new methods and strategies which will improve instruction and student outcomes. Gradually it should merge with a total systems approach.

Individualization has been divided into two major trends. Individualization I is, in practice, a convergence of the behavioral programming of instruction and the systems approach. Its concepts subsume CBE and Mastery Learning as elementary applications of the systems approach, and build toward sophisticated systems which can prescribe instruction for each individual. As it relaxes its behavioral premises and integrates findings of cognitive psychology and general systems theory, it may merge with the humanistic concerns of Individualization II.

Individualization II categorizes those philosophies and practices which emphasize the student as an active participant in learning, growth and development. Its themes include open schools to create a climate for participation and self-initiated learning; the skills of becoming a self-directed, continuous learner; and an emphasis on the "person." Concern with the "person" ranges from including the "affective" domain in education, to achievement of the integrated personality and human potential.

Table 1 attempts to summarize the characteristics of these concepts by treating them as alternative approaches to designing the "components" of any educational system.

Table 1. Summary of Concepts Reviewed

SYSTEM COMPONENT	COMPETENCY-BASED EDUC.	MASTERY LEARNING	INDIVIDUALIZATION I	INDIVIDUALIZATION II
CONCEPTUAL BASE				
PHILOSOPHICAL ORIENTATION	Social Efficiency	None to variable	None to variable	Humanistic
PSYCHOLOGICAL BASE	S-R behaviorism	Modified S-R Behaviorism /cognitive	Modified S-R Behaviorism /cognitive	Cognitive, existential, integrative
PLANNING AND CURRICULUM DEVELOPMENT PROCESSES				
CURRICULUM SOURCE	Social role analysis	Any	Any	Student processes
CURRICULUM CHARACTERIST.	Fixed and programmed	Fixed and programmed some options	Well structured w/mod flexibility	Structure but chosen by student
CURRICULUM FORMAT	Some modular units	More modular units	Most modular units	Varies with situation
USE OF OBJECTIVES IN PLANNING				
PLANNING BASED ON	Prespecified Objectives	Prespecified Objectives	Prespecified Objectives	Conditional Objectives
SPECIFICITY REQUIRED	Must be measurable	Must be measurable	Must be measurable	Need not be measurable
FORMAT REQUIRED	Behavioral	Modified Behavioral	Various Mod. Behav.	No prescription
EVALUATION				
DOMINANT ORIENTATION	Criterion-referenced	Criterion-referenced with others	Criterion-referenced with others	Student's value system and purpose
FORMATIVE EV. AND FEEDBACK	Not in min. configurat'n	Prominent feature	Prominent feature	Prominent feature

Table 1. Summary of Concepts Reviewed (Continued)

SYSTEM COMPONENT	COMPETENCY-BASED EDUC.	MASTERY LEARNING	INDIVIDUALIZATION I	INDIVIDUALIZATION II
		INSTRUCTIONAL SYSTEMS AND STRATEGIES		
PREASSESSMENT COMPONENT	Desirable	Sometimes Operational	Required and diagnositic	Emphasis on self-assess.
STUDENT GOAL/ COUNSELING				Required
ALTERNATIVE CURRICULUM			Advocated	Required
ALTERNATIVE LEARNING STR.	Desirable	Often Operational	Required	Required
INDEPENDENT STUDENT WORK	Implied	Implied	Usually Necessary	Explicit goal of system
TEACHER ROLE	Causal Agent	Causal Agent /Manager	Resource mgr. /scientist	Counselor/ Resource Mgr
FORMATIVE EVALUATION		Required	Required	Required
		SYSTEM MANAGEMENT/SUPPORT CAPABILITY		
SYSTEM MGT. CAPABILITY	Not in min. configurat'n	Required but manual	Required w/ technology	Not defined
OPEN ENTRY/ OPEN EXIT	Desirable	Implied	Implied	Implied
STUDENT PROGRESS RECORDS	Competency checkoff	Variable	Variable	Longitudinal/ & diagnostic
RESOURCE MANAGEMENT				
RESEARCH DATA & SUPPORT				

Interpretation of the Summary

Table 1 is partly an attempt to summarize findings; and partly an attempt to set the stage for exploring their implications for the Foundations Program.

As a summary of findings, the blocks of the matrix in Table 1 would, ideally, clearly distinguish concepts. Unfortunately, there was too much variability and inconsistency to permit more than general confidence in the classifications made. The problem was further complicated by attempting to compress such variation into simple characterizations which fit the four columns of the matrix.

Does Table 1 set the stage for analysis of implications? Partly yes, and partly no. In general terms, the Foundations Program faces the classic problems of recognizing individual differences and devising strategies to deal with them. From this perspective, the review of Individualization provides the most desirable stage for decision-making. The two basic strategies in individualization are to (1) use the systems approach to develop a more sophisticated technology of schooling and instruction; and (2) develop the capacity of the student for self-direction. A combination of both are probably necessary. Therefore, decision-makers should refer to the review on Individualization for the most appropriate perspective.

Table 1 does not present that perspective. Its anticipated value is articulation of system components. The "Systems Component" column in Table 1 suggests that in order to solve any educational "problem," or to design an educational system, one must make a series of decisions about the capabilities and components required. In the review of CBE, using such a list was the only way to make sense out of the diverse approaches encountered. In a similar way, it may be the only way to accurately capture the range of problems faced by the Foundations Program. The reader interested in working through the complexities involved may use the review of CBE as a case study. Although tedious, Chapter Two reflects some important issues involved.

However, whether or not Table 1 sets the stage for analyzing implications, depends on the reader's conceptualization of the problems to be solved. In Chapter III, alternative approaches to analyzing implications will be discussed. Then, a systems approach will be assumed in Chapter Four and interpretations will be made of the major components in Table 1.

CHAPTER THREE

DIRECT AND GENERAL IMPLICATIONS FOR THE FOUNDATIONS PROGRAM

The analysis of implications requires interpretations, both on the part of this investigator, and on the part of NTID faculty and staff. However, two factors make it difficult to approach this analysis. First, a boundary seems to have been drawn around the problems which the Foundations Program can address. Problems dealing with student characteristics and behaviors seem to have been admitted. Problems dealing with overall system capability and policy seem to have been excluded. Yet, the concepts reviewed have general systems implications.

This leads to the second factor influencing the direction of analysis. Systems interpretations of the investigator move easily into the area of "recommendations." These were not solicited, nor is the investigator sufficiently familiar with the problems of NTID to justify making them. The alternatives are to literally interpret the problems presented in Chapter One; and/or to question the adequacy of that problem definition from the perspective of general systems design.

A middle ground between both extremes will be attempted. The first part of this chapter will take an "objective," literal, and perhaps simple-minded approach. Then, this constraint will be relaxed and interpretations freely given. To build the bridge, two types of "implication" will be defined and used in the analysis of the concepts reviewed. They will be called "direct," and "general."

The term "direct" implications will refer to a literal comparison of the concepts reviewed to the list of problems identified in Chapter One. For example, if career decision-making is a problem within the Foundations Program, then a concept will have direct implications to the extent that career decision-making, or a similar problem, is characteristically dealt with in the literature or implementation of the concept.

The term "general" implications moves beyond the literal intepretation of the problems. Concepts such as CBE and Individualization I do not address the sixteen problems outlined by NTID, any more than they address the learning of history or mathematics. They are content free, and refer to problems of general educational strategy and system design. In a sense, some version of Individualization I or II must be adopted because they reflect the range of alternatives open to schools. In this case, interviews with staff and faculty suggest a series of concerns relative to the system design process which deserve recognition.

Table 2 appears to be a reasonable approach to analysis of implications. In practice, filling in the blocks is a futile exercise. The reader is invited to try. The entries made in Table 2 represent a literal interpretation of the concepts relative to the sixteen problems. If there was no "direct" implication, the term "none" was entered.

Table 2. A Framework for Analyzing Implications

STATEMENT OF PROBLEM	CBE	MASTERY LEARNING	IND. I	IND. II
THE THREE BASIC PROBLEMS				
I. To better prepare students to enter a major.	None	None	None	None
II. To better prepare students to choose a major.	None	None	None	General
III. To facilitate changes in major without extensive cost in time and credit.	General	General	General	General
THE SIXTEEN SUBPROBLEMS				
1. Students have a limited knowledge base...	None	General	General	General
a. have preconceived notions regarding careers	None	None	None	General
2. Students have a limited knowledge of self...	None	None	None	General
3. Students use unsophisticated processes for decision-making.	None	None	None	General
4. Our students lack a repertoire of coping skills.	None	None	None	General
5. Our students possess an inadequate knowledge base regarding cultures...	None	None	None	None
6. An NTID student's sense of purpose and identity emanates from affiliation with a major.	None	None	None	None
7. There is no centralized body which reviews and monitors student flow (N).	General	General	General	General

Table 2. An Analysis of Direct Implications (Continued)

STATEMENT OF PROBLEM	CBE	MASTERY LEARNING	IND. I	IND. II
8. We lack an institutional definition of abberant student flow (N).	None	None	General	General
9. We are unable to provide appropriate experiences for students who....	None	None	General	General
10. Students are forced to choose a career direction prior to being ready and able	None	None	None	General
11. Students lose an unacceptable amount of time and credit in transferring from major to major.	None	General	General	General
12. There is a gap between student's entry abilities and criteria for entry to majors.	General	General	General	General
13. There is a lack of systematic process for assessing a learner's strengths..etc..	None	General	General	General
14. There is insufficient time to develop process skill and content mastery prior ...	None	General	General	General
15. We lack multiple entry points to NTID and majors.	General	General	General	General
16. We lack specified institutional, departmental and major requirements for..(N)	None	None	None	None

A quick review of Table 2 indicates that none of the concepts have any direct implications for the Foundations Program. Under CBE, Mastery Learning and Individualization I, the entry "General" was made when a systems design concept was involved. Under Individualization II, the entry "General" was made when the decision-making capability of the student was involved.

The lack of the entry "direct" does not imply the absence of the sixteen problems in other systems. From a conceptual point of view, all educational systems have problems of inadequate student readiness, preparation and decision-making capability. What the review of concepts reflects are general strategies for dealing with such problems.

Individualization II, however, deserves special comment. That system takes its shape from beliefs that the learner is, and must be, an active agent in the learning process if growth is to take place. Thus, the goal of the system is to foster the self-directed, continuous learner, and this requires dealing with processes of decision, independent learning, and goal formation. To that extent, the "learning theories" of Individualization II have implications for such problems as career decision-making, and its consequences at NTID for changes in majors.

On the other hand, the most that this review of Individualization II can accomplish, is to point to the importance of other studies commissioned by the Foundations Program. The appropriate group of studies deal with developmental concepts such as values/valuing, problem solving/decision-making, locus of control, motivation, and models of human development.

At this point, the reader might conclude that the reviews of CBE, Mastery Learning and Individualization I have no serious implications for the Foundations Program, and may read no further. Insofar as the listed problems are concerned, such a position might be justified. None of the concepts offer solutions for preparing students to enter a major; facilitate career decision-making; or show how to facilitate changes between majors.

Yet, by addressing the problem of well-designed systems, they offer approaches for dealing with these and other problems. However, the question remains that of how the problem structure of the Foundations Program is to be defined. In the context of the systems approach, the problems of design and management of the Foundations Program are influenced by solutions to similar problems in NTID itself. When such concerns were included in the list of sixteen underlying problems, they were often excluded as being beyond the scope of the Foundations Program. Yet, a systems view suggests that they might be fundamental to the success of any program designed.

If one is willing to view the administrative and instructional capabilities needed in a systems perspective, the concepts reviewed have many implications.

General Implications

During interviews with the faculty and staff, this investigator was impressed with the degree to which NTID shares problems similar to those in other educational systems. In that context, it is not sufficient to discuss the general systems implications of CBE, Mastery Learning and Individualization. One must also deal with the basic approach of administration and faculty in interpreting and applying them.

The Bandwagon and Panacea Problem

One of the first implications of the concepts reviewed is their bandwagon effect. In the review of Competency-based education, in particular, it was noted that demands for accountability and more effective management have led to imposing the concept by policy mandate without regard to the validity of its underlying rationale or its implications for staff and necessary support mechanisms.

In interviews with the staff at NTID, a generally constructive attitude was taken toward the intent of the investigation. However, while not unanimous, there was substantial feeling that the intent of the studies was to find a "panacea" for the problems facing the Foundations Program and NTID. Once this became explicit, the investigator made an effort to explain the philosophy behind the current research. That is, administrators were refusing to define what the Foundations Program would be; were not employing the investigator as an "expert," and were not seeking his recommendations. Instead, this was an objective search for alteratives, and the purpose of the research was to provide information tools for the use of administration and faculty in deciding what the Foundations Program should be, and what alternatives might be applicable.

It also became explicit, that the concern was not merely with a mental set which led to a search for panaceas rather than considered analysis. There was claimed experience with a management style which sought such solutions and imposed them by mandate.

> You should be aware that administrative mandates are given in top down fashion.
>
> We have had mandates that you will individualize by....
>
> Yes, we have had mandates...am I correct in thinking that you want our opinion as to what will work best?
>
> Great respect for _____, but listen to teachers not administration. Ask teachers what is essential.
>
> Open ended process...set up objectives...then in a year or two revise them...courses are evolutionary...always being revised. Is philosophy supposed to be that when objectives are stated, they (are in concrete)?

There is an underlying expectation on the part of at least some faculty, and perhaps a significant portion, that management is looking for a panacea, and once such a course of action is found, it will be imposed upon the staff.

However, a larger group, sometimes including those objecting to the "panacea" approach, made an astute observation which is borne out by this study. Concepts that come in packages tend to be rigidly interpreted, while what is needed is an eclectic approach to meet a variety of needs.

> Students come through and are faced with a set of outcomes in order to get out to there....we are assuming there is going to

> have to be variable time learning and methods... Use a combination of all or part of these ...doesn't seem to be one answer...a combination of these.
>
> Hate to see it all interpreted one way...must be combination of components...flexibility with alternative capabilities is paramount concept.
>
> I have been an advocate of Mastery Learning and Individualization for years...and still struggling with the gap between ideals and practice...these movements are poorly defined...we need an eclectic approach.

As will be seen in a comparison of the concepts being investigated, these faculty members captured the essence of the study and of the systems approach. Any lasting solution involves a systematic approach to analyzing the diverse requirements of NTID, selecting relevant components, and establishing an integrated system to support them. The work involved cannot be avoided by seeking to buy a package of solutions that might work.

Implications of the Systems Concept

In a comparison of the concepts in Table 1, one of the striking features is the pervasiveness of a general systems approach and the inadequacies which emerge in separate concepts which fail to deal with the variables involved. As a general rule, the more a program is designed in terms of "total" system variables, the greater the chance for success. This tends to be borne out by the relatively poor success of CBE in comparison to Mastery Learning and the systems approach to Individualization.

As a general systems principle, the Foundations Program is only one subsystem within NTID. Its potential effectiveness depends on the relationships its design establishes with other subsystems and the system as a whole. Interviews with faculty and staff at NTID, and a review of concepts such as Individualization, suggest that some of the problems held to be beyond the scope of the Foundations Program may be the most critical to its success.

One begins to approach this hidden agenda, and the possible implications of concepts such as Individualization by asking the question: "Why do the three fundamental needs have to be addressed at all?" That is, why is changing of majors and lack of preparation for majors a "problem" at all? The question is not facetious. It is pervasive in all the concepts reviewed, and in the listing of sixteen problems developed at NTID.

There are two types of answers to the question posed. One type refers to a wide range of differences in students, i.e., lack of readiness or preparation, poor decision making skills, etc. The second type of answer refers to the inability of schools to deal with them. The "needs" which the Foundations Program is to address, are only partly derived from the needs of students. They are also "problems" because they represent obstructions in the flow of students through NTID to the job market. The criterion by which a solution will ultimately be judged adequate is that imposed by federal mandate: to train students for jobs within some "reasonable" period of time. Such a statement is not meant to denigrate such a criterion, for it is laudable, provided that it realistically recognizes other problems involved.

With the possible exception of CBE, the literature pertaining to all of the concepts reviewed is consistently critical of the programmatic nature of school structures and their sequencing in fixed time blocks. This means that school functions and student progress will be measured and controlled by fixed entry and exit points established by the course schedule. This is significant for understanding the nature of the Foundation Program's mission. Essentially, the role of Foundations is to take entering students with a wide range of differences, and achieve a more standardized input into major programs which are to remain relatively fixed in time schedule.

A comparison to the industrial model is not irrelevant because it highlights some of the problems raised by faculty during interviews with this investigator. There is little question that schools are generally designed around assumptions underlying the industrial model (Kliebard, 1975; Callahan, 1962). The success of the industrial production model depends on task and process analysis and rigid scheduling and coordination of flow. It also depends on rigid quality control of both inputs and outputs.

If a production manager was faced with the variable "raw material" inputs facing schools, production would halt. School administrators, however, have a valuable asset which industrial managers don't have; flexible production processes called teachers. Consequently, the administrator can place responsibility on the teacher to deal with all variable inputs and turn out employable graduates. However, there are limits to this process, and they must be recognized if alternative solutions are to be realistically appraised.

Thus the problem definition returns to the basic matter of building flexible systems of instruction appropriate to the range of differences which exist in students. Resistance to that problem is encountered from constraints of cost, time, tradition, and legislation. It should be noted, however, that in industrial and military training practice, it has been found profitable to change from time-structured courses to flexible open-exit and open-entry patterns. The additional time taken to train some students tends to be offset by the lesser time needed by other students. To argue solely about the cost of conversion, assumes that the existing system is already cost effective.

Relationship of Foundations to NTID

The above analysis suggests that the "problems" which Foundations is charged to solve must be placed in an overall systems perspective. If the problem is defined as the development of a six-month, one-year, or two-year program of study to be called a Foundations Program; then it is unlikely that the central issues will be solved. Staff and faculty are aware that if the Foundations program goes to flexible scheduling or self-paced instruction, then comparable changes throughout NTID are probably necessary. On the other hand, it was made clear to this investigator that the anticipated mission of the Foundations Program has already been circumscribed: to wit, "we cannot take responsibility for the student clear to the end...we can only get him ready for the major.".

What makes this limitation interesting is that there is little confidence on the part of adminstration or faculty that Foundations can really achieve the task assigned. The hope is that "perhaps Foundations can scratch the surface" or "get the student started in decision-making" or accomplish some other limited objective. There is majority recognition that learning problems addressed by the Foundations Program will exist either "clear to the end" or well after the student's entry into the major.

One faculty member stated that he didn't like the notion of "Foundations Program," but preferred the notion of "Foundations Concept." That is comparable to this investigator's view of the problem. It recognizes the developmental and long range nature of the student learning tasks, and it recognizes the need for a total system design to grapple with it.

Teachers in the majors are already dealing with most of the learning problems addressed by the Foundations study. Many expect to continue dealing with them after the Foundations Program is established. Queried about their continued role, one stated "we are ready to take responsibility for this, but we need help."

The nature of the problem suggests that resolution will not come from a policy decision that says this is or is not the responsibility of the Foundations Program. The reality of student development will confront teachers in the majors regardless of policy. But experience suggests that the capacity needed to solve the resulting problems can only come from an encompassing "systems" policy.

CHAPTER FOUR

IMPLICATIONS OF SPECIFIC COMPONENTS

As indicated in Chapter III, the concepts of Competency-based Education, Mastery Learning, and Individualization have no direct implications for the Foundations Program, as that term was previously defined. The line of reasoning followed was that a difference existed between student learning processes and the capacity of the system to deal with them. It was assumed that if a system was designed to be flexible and had capacities for diagnosis, formative evaluation, alternative learning opportunities, etc., it would be in a position to respond to student differences, regardless of their nature.

That line of reasoning still dominates this chapter, but a modification becomes necessary. Without assuming a cause and effect relationship, it is evident that certain system components and/or teaching styles are not suited to all specific educational goals. Teacher-directed strategies may foster student dependency. Conversely, students may not be ready for independent learning strategies. These points were raised during discussions with faculty and will be considered in the following analysis.

On the other hand, except for Individualization II, the concepts reviewed do not deal with student learning processes. They deal with the systems approach to design. They are therefore applicable only if administration redefines its problem structure in terms of both student processes and system capabilities needed to respond to them. In this chapter, it is assumed that administration and faculty will take such an approach to designing the Foundations Program and deal with each of the major components listed in Table 1. Then the alternative answers suggested by CBE, Mastery Learning and Individualization have implications for the decision-making which follows.

Implications of the Philosophical Base

The comparison of concepts reveals three basic philosophical positions: (1) the social efficiency position of CBE; (2) the school/learning models of Mastery Learning and Individualization I; and (3) the "humanist" position of Individualization II.

From interviews with faculty and from the description of approaches taken in the various programs, it may be concluded that all three philosophical positions exist at NTID. However, there seems to be some conflict in finding a balance between them.

Political pressure for competency-based designs has already reached NTID. There have already been administrative mandates to structure curriculum by objectives. One faculty member reveals that medical programs certified by the American Medical Association must be competency-based and acceptable to AMA reviewers. The mission of the school is predominately fixed by federal legislation, and the orientation is vocational and toward CBE. Despite considerable latitude, the school's ultimate criterion of success is the employability of its graduates.

A Parable

The difference between CBE and Individualization II sets the parameters of the problem. Glaser (1977) cites a parable told by Benjamin (1949) that describes the implications quite well.

> In a tale given to American educators by George H. Reavis, the wild creatures once had a school in the woods. All the animals had to take all the subjects. Swimming, running, jumping, climbing, and flying made up the required curriculum.
>
> This was a school of no nonsense. It was a good, liberal educational institution. It gave broad general training - and instruction - and education too.
>
> Some animals, of course, were better students than others. The squirrel, for example, got straight A's from the first in running, jumping and climbing. He got a good passing grade, moreover, in swimming. It looked as though he would make Phi Beta Kappa in his junior year, but he had trouble with flying. Not that he was unable to fly. He could fly. He climbed to the top of tree after tree and sailed through the air to neighboring trees with ease. As he modestly observed, he was a flying squirrel by race. The teacher of flying pointed out, however, that the squirrel was always losing altitude in his gliding and insisted that he should take off in the approved fashion from the ground. Indeed, the teacher decided that the taking-off-from-the-ground unit had to be mastered first, as was logical, and so he drilled the squirrel day after day on the take-off.
>
> The flying teacher's practice in this case was in strict accord with the educational philosophy of the school. The teachers recognized that students would necessarily display great variations in their abilities. In the Woods Normal School, as a matter of fact, the teachers had learned a great deal about individual differences and the consequent tremendous ranges in human capacities. They set themselves doggedly, therefore, to the task of reducing these differences as best they might, that sane likenesses, safe unities, and noble conformities might prevail in the woods.
>
> The squirrel tried hard. He tried so hard he got severe Charley horses in both hind legs, and thus crippled, he became incapable even of running, jumping or climbing. He left school a failure, and died soon thereafter of starvation, being unable to gather and store nuts. He was cheerful to the last and was much beloved by his teachers and fellow pupils. He had the highest regard for his alma mater, regretting only

> the peculiar incapacity which had kept him from passing the course in flying....
>
> Old Man Coyote, who had been studying the development of education in the woods, shrewdly observed, "All these pedogogical characters are going at this business wrong end to. They look at what animals and birds-a lot of animals and birds - do and need to do. Then they put those needs and those doings into formal schoolings and try to make the little pups and cubs and fledglings fit the schoolings. It's haywire, wacky, and will never really work right."
>
> Tom Gunn's Mule ... demanded harshly, "If you're so smart, how would you do it?"
>
> "Why, I would turn the whole thing around...These school people start with things that birds and animals do - or even more often what they did some time ago....Then the teachers hammer these doings - or as much as they can handle and as they think high-toned enough - into schoolings, courses, curriculums, and subjects. Then they hammer the pups into the schoolings. Its a rough and dopey process...they make a lot of cubs and pups and fledglings mean and rough and dopey when they could and should make them good and slick and smart."
>
> "Sure, sure," snorted Tom Gunn's Mule, "but you still haven't told me how you would do it."
>
> "Turn it around," said Old Man Coyote. "Start with the pups. See what the pups do. Then see what the school can do for the pups. Then see what the pups and the school together can do for all the creatures in the woods. Simple - forwards instead of backwards- right end to instead of wrong end to.
>
> "Hey!" shouted Tom Gunn's Mule. "Wait! These teachers ... have to run those schools. They are practical people. Just how, specifically and precisely, would you tell them to change their schools so as to get their education right end to, as you call it?"
>
> Old Man Coyote patted a yawn with the back of his forepaw. "I lay down general principles...These school teachers have got to figure our some of the minor details themselves." (pp.1-8)

The inadequacies of the philosophy of vocational education, its social efficiency philosophy and CBE have been well documented; perhaps most of all in the list of problems facing the Foundations Program. An entire group of problems dealing with career decision-making, academic preparation, coping skills and personality development speaks to individual differences and the active, participative role that a person must play in the world of work and preparation for it. Growth and development could merge with CBE, not as a matter of conflict resolution, but by recognition that growth in many areas beyond occupational skills is required to cope with the world of work. Such recognition is widespread among teachers at NTID, but willingness to deal with consequent system design changes is not explicit in the way the "problem" of the Foundations Program has been structured.

In this sense, the philosophical debate going on at the national level between proponents of CBE and Individualization II might provide guidance for a similar debate which should go on within NTID. The relation between the Foundations Program and the vocational majors is similar to that between Career Education and Vocational Education. In both cases, the structure of vocational programs assumes too much about the readiness and malleability of its entrants; and perhaps too much about what is required in the world of work. Vocational educators across the nation, if asked to compile a list of problems they face in preparing students for work, would respond with a list very comparable to the sixteen presented by the Foundations Program.

The national solution has been to charge academic schools with a K-12 program to develop vocational maturity and career readiness. It would appear that NTID is charging the Foundations Program with a similar task within a much narrower time limit. In contrast to the rigid structure of most public schools, NTID has an enormous, but not unlimited, capability for seeking innovative solutions.

Several faculty members expressed concern for bringing the strategies of career education into the program, and some of the problems involved.

> Deaf students often have no conception of work itself.
>
> Many do not know what work their parents do.
>
> One of the biggest problems we have with students is trying to educate them to the relationship between what they are being asked to learn in a program and how that relates to their benefit now or later...for example, math.
>
> We can talk until we are blue in the face as to why they need it... it doesn't do any good.
>
> They can't see why they are being asked to do all these things, because they can't see how they come together later on and get applied to a real job.

Such problems raise a dilemma at NTID. Some alternative strategies for dealing with them are:

> Screen students more carefully so that only those "ready" for the program are admitted.
> Allow students to take whatever time is necessary to develop basic skills, vocational maturity, human relations skills, etc.
> If students are not progressing satisfactorily, eliminate them from the program.

None of these strategies seem to be viable or acceptable within the current policy framework and school structure.

Conversations with the staff indicate that students frequently view NTID as a growth experience within itself. Conversely, it is held that NTID cannot be a liberal arts college. It is not suggested that a "philosophical" shift from vocational preparation to Individualization II provides an answer. But it is suggested that the problem has not been adequately defined when individual differences in growth are viewed as factors which must be minimized in order to fit the structure of a school. To improve the effectiveness of the vocational preparation program, one must grapple with the processes of vocational development and maturity. A first step, if not a solution, might be to integrate a philosophy of vocational preparation with a philosophy of humanism which sees the individual as a decision-maker. This integration seems to have already occurred in the thinking of many teachers. It does not seem to have occurred in the design of the school.

Implications of Evaluation and Measurement Philosophies

There are several implications for NTID in the review of evaluation and measurement components. In CBE and Mastery Learning, the shift from normative to criterion-referenced evaluation philosophies stands out as a characteristic feature of those packages. In CBE, the concept is narrowed to a behavioristic interpretation. Measurable student outcomes are taken to be the ultimate criterion upon which the entire system can be evaluated. In Mastery Learning, the implications of criterion-referenced measures are not narrowed to a behaviorist interpretation, and are even supplemented by techniques of formative evaluation.

In the systems approach, or Individualization I, there is recognition of the need for an eclectic evaluation system which addresses the system as a whole. While development of such comprehensive techniques is not complete, and description becomes quite complex, the concept is to develop a variety of evaluation techniques needed to support decision-making in different situations.

In Individualization II, all of the techniques of other packages may be adopted subject to the requirements of an added dimension, i.e., consideration of the student's own standards and processes of evaluation.

Behind all of the evaluation schemes are unresolved struggles between the concepts of "objectives," "evaluation," and "measurement." Although not well documented, it would appear that the philosophy of measurement operates as a value system which influences the interpretations of "objectives" and "evaluation." Perhaps derived from early theories of science, the field of measurement focuses on the reliability and validity of measurement instruments and implies such dictums as: "objectives are not objectives unless they are measurable," and "evaluation is not evaluation unless it meets the criteria established for measurement."

Does this have implications for NTID? Yes, to the extent that it considers alternative strategies for developing evaluation systems that meet its needs. The experience of CBE suggests that a mandate to translate local reality into observable and measurable terms is likely to be unsuccessful and disruptive. It is also likely to distract attention away from considering the aspects of the system which need evaluation (Combs, 1972).

The concepts "observable" and "measurable" also distract attention away from the primary resource that the system has for evaluation and control, i.e., the intelligence and judgment of its human decision-makers. Eisner (1967, 1979), impressed by Dewey's analysis of judgment, has gone deeply into the role of human judgment in educational evaluation. Regardless of the relative merits of measurement theory as opposed to "judgment" theory, the possibility of developing an effective evaluation system depends at this time on using the human resources available. As revealed in the study of CBE, acceptance of the criteria of "observable" and "measurable," tends to create dependence of the system on the technology of measurement. It is not yet capable of delivering; and there is serious question about its cost effectiveness and educational implications.

The role of the individual student in defining the standards and methods of evaluation is difficult to capture, and it is beyond the capability of this investigator to explore its implications for NTID. Yet, during interviews with faculty, several comments were made by faculty members who were themselves hearing impaired. They merit consideration in the design of evaluation systems.

> Being so impatient with other people...someone with hearing said that...so that must be the way it is....I don't think we are more impatient, but I have to put it in a way that they (hearing impaired students) see themselves as equal - not the same - but as equal to others. So I think students judge themselves by hearing students...or by what they think hearing students are doing. They compare themselves all the time. And they always stay under them.
>
> I don't feel I'm behind because I don't have some of the same skills that hearing people have. I simply don't have the same (?) they have. Therefore, I don't have the same skills. But I'm not retarded. But a lot of times you'll get that

> impression... they're retarded, they're socially deprived, but that's not true. Those are hearing standards...By deaf standards (tapes not clear).
>
> (This investigator interpreted comments received from an earlier group about communications behavior of deaf students in the Summer Vestibule program.) You made a statement about communication that I would disagree with. We do want to communicate, but we can't communicate on their level or standards on that day...There's a lot of statements made and I'm beginning to resent them....that...... Those are hearing standards and they already reject those that don't make it by those standards. So the poor kids are programmed to achieve by hearing standards

The shift from CBE predefinition of objectives and criterion-referenced measures to the student's objectives and standards in Individualization II obviously affects the design of the entire system. Despite the federal criterion of employability of graduates and its implications for CBE-like prespecification, teachers and students are likely to struggle with different measures of success.

On the side of the teachers, there are many who start with the student and develop criteria from face-to-face interaction. That position must shift constantly as employability goals are recalled. From the position of the student, it is obviously even more complex. There is ample reason to question whether the criteria of employability is shared by students, and for some, even understood. NTID is an experience, and presumably viewed as a growth experience, that may be pursued for its own sake. The student, at least, is starting with his/her self assessment and personal aspirations no matter how vaguely defined. NTID, intentionally or not, presents its own set of standards to which one must be compared: standards of communication; socialization; and job competence. Like the squirrel, the decision to reject some of them may be more important for survival than the decision to "judge oneself by hearing standards."

Curriculum Development and Structuring

While not always explicit, the concepts reviewed have one common theme in regard to curriculum. That is the effort to "define," "articulate," and clarify in ever increasing detail the "curriculum." One might regard this as an effort to develop a science of education. The effort is hampered by the lack of a theory of curriculum, and competing views regarding its appropriate sources and structuring.

Of the concepts reviewed, CBE and Individualization II offer the major conflict involved. CBE uses social role analysis as the source of curriculum and behavioral analysis as its prescription for structuring it. Individualization II uses the "needs and interests" or other dimension of the learner as the source of curriculum and searches for frameworks to describe how what follows may be structured. Models for integrating these divergent views are the major problem. Patterns of growth and development, and of decision-making appear to offer some viable frameworks (Nelson, 1979; Willett, Swanson and Nelson 1979). Practice of Individualization II ranges from open permissive environments such as Summerhill (Neill, 1954) to uncomfortable compromises with alternative curriculum designs.

The systems approach does not directly address the issues of curriculum theory. It does present a process framework of curriculum development which should apply regardless of the theory adopted. That is, it addresses the problems of system flexibility, curriculum management, and building the instructional resources needed to achieve goals, however they may be defined.

One area with critical implications for any improvement of instruction is the notion of programming. As noted in the review of Mastery Learning, one of the fundamental premises of programmed instruction was that any complex behavior could be broken down into subordinate units. When interpreted as a fundamental principle of psychology, the hypothesis is questionable. However, when interpreted as a technique of instructional planning, the concept becomes useful.

All concepts share the premise that instruction will improve to the degree that educators know what they are doing. Each requires, in theory, that the entire curriculum be analyzed and structured in terms of some framework. Differences occur, not in the fundamental premise, but in the models upon which curriculum is structured. Into these efforts creep such frameworks as Bloom's taxonomy, Gagne's events of learning, and a variety of other models which increasingly seek to capture the behavior of the learner.

Two presumed advantages follow from such curriculum analysis. First, instruction improves to the degree that one can define and hence understand what is being done. Second, when the structure and relationships between units are clear, greater flexibility in packaging and sequencing is possible. Such articulation does not require acceptance of the theory that all complex behavior is composed of elementary units; nor the theory that learning is most effective when achieved through a series of discrete steps.

It is presumed that if curriculum structure can match relevant processes of learning, it will be more effective. But whether this ideal is achieved or not, it has the advantage of defining sets of response capabilities for the system which can be called upon when needed. It enhances teaching effectiveness and system flexibility. Any attempt to build an educational system which is flexible and responsive to individual differences, must have an instructional support system whose complexity is geometrically proportional to the number of student variables to be considered. It must include alternative curriculum designs, and within those, alternative learning strategies.

Modularization of Curriculum and Materials

The term modularization refers to the packaging of curriculum and instructional materials into smaller units which can then be more flexibly sequenced and used in a variety of learning situations. The term "module" is most often used in reference to a "learning package" designed for independent study by a student. It is useful to recognize that it can also refer to a teacher's lesson plan or set of interrelated lesson plans. It then takes on the connotation of instructional unit.

In addition to supporting a variety of instructional strategies, modularization also facilitates the process of curriculum revision. It is easier to rewrite a modular package than the curriculum guide for an entire course. There is an increasing tendency to write modules in a format that can serve as a resource for either a teacher-directed activity, and/or independent study by an individual or a small group.

Teachers and Curriculum Development

Adoption of any of the concepts reviewed implies an extensive curriculum development effort. The burden of curriculum development typically falls on teachers, for a variety of reasons:

> Curriculum guides are often written in sketchy form and do not adequately support instruction. While a distinction is made between the curriculum guide and teacher lesson plans, the result is that the teacher must finish development of the plan which guides and/or documents instruction.
>
> It is claimed that teachers must be involved in development if curriculum products are to be used instead of sitting on a shelf.
>
> Funds are not available to support a specialized curriculum development staff.

These factors hold true in any educational system. However, adoption of CBE or any of the other concepts, implies much more curricular detail than that found in traditional systems. At NTID, discussions indicate that most, if not all, curriculum development work would be added to the teacher's existing workload. NTID faculty expressed:

> Concern about developing instructional materials..takes 30-50 hours to develop one hour of instruction..we need a common method for developing them.
>
> All materials will be teacher developed ... Some instructional development people available, but this department never was assigned one ... usually not qualified in your area.
>
> We must emphasize curriculum development and curriculum management capability ... sharing of materials.

Estimates of workload were not used to advocate rejection of CBE. Improvement and articulation of curriculum was taken to be a necessary task whether concepts such as CBE were adopted or not.

The faculty estimate of time required to develop instructional material under a systems concept is reasonably accurate. Glaser (1977) estimates that it takes five years to develop a three year reading program that meets reasonable design criteria. Although not explicit, that estimate applied to the work of a development team rather than an individual.

The issue does not seem to be whether additional curriculum development work is necessary. The question seems to be whether a centralized curriculum development and management effort can save 50 or more hours per year for each of a hundred teachers who must compensate for inadequate curriculum and instructional products. This seems to be central in the concepts reviewed, and may apply to NTID's situation as well.

Instructional Systems and Strategies

If one evaluates the four concepts in Table 1 across the instructional strategies component, there are a range of conflicting viewpoints. Proponents of CBE, for example, often claim that CBE is independent of instructional strategies. That is, it can be implemented using any strategy or combination of strategies. Mastery Learning has also been designed around a large-group instruction theme and an independent study theme. In Individualization I, the central principle is that individual differences exist in learning styles and alternative strategies should be developed to accommodate them. In Individualizaton

II, the explicit goal is development of the independent, continuing learner. While differences in learning styles are recognized, the long range goal implies progression of strategies until the student can function independently.

As indicated at the beginning of this chapter, modifications must be made in the conceptualization of system capabilities on the one hand, and learning processes on the other. The problem arises when consideration of the learner's interaction with the system becomes unavoidable. This interaction exists even between the student and the overall system philosophy. In the case of instructional strategies, it becomes obvious. For example, the tendency of teacher-centered instruction to create dependency in the learner has already been mentioned; as well as the inability of many students to function independently.

During interviews with NTID faculty, several comments were made which suggest what the perceived implications of concepts such as CBE might be:

> CBE..its writing objectives, making sure students know what the objectives are, its Mager's approach more or less, its more like programmed instructional packages...I have a little experience with that...what I found is that deaf people, because of thier handicap, are very much isolated in life. They *need* other students. They don't like working alone in isolation...that's a generalization.. but I think its true..they don't like working alone.
>
> We have already here at NTID a math learning center, and that is individualized. Many students complain about it. They seem to *enjoy* which is very very important..working in groups best. They've been alone all their lives because of the communications barrier. So, that plus the fact that most of the programmed materials I've ever seen are not written in the way deaf students can learn from, so my initial reaction to

> programmed instruction, Competency-based education is not so good for our students.
>
> My students like structure. I clearly establish the objectives for my course and let the students know what they need to get A's... I find that they really enjoy that structure.
>
> There is the independent learner...you're a facilitator. Some need more structure. Many come from residential schools...no freedom at all ... those you have to competely structure.. Those are the students you take in the first year and tell them this is what you have to do and this is what will happen if you don't...
>
> Astounded when they come here and find they are not going to pass the course.
>
> Found that some students don't need as much guidance as others... if you take time to explain to others who rely on structure they are bored...get frustrated..

One way of interpreting the problem is to ask "If one adopts CBE or Individualization, does this mean that the dominant learning strategy will be independent study which isolates the student?" One way of answering that question is to point out the number of cases in which CBE or Mastery Learning have been implemented without independent study, or with a minimum amount of it. However, this does not address the real issue.

A second way of answering the question is to point out the difference between Individualization and independent study. Individualization refers to the ability of the system to recognize individual differences and needs, and develop appropriate strategies. There is a tendency to equate Individualization with independent study. While the two are not the same, it is true that independent study becomes an increasingly necessary ingredient in Individualization as one recognizes more individual differences and the teacher is burdened with alternative strategies for dealing with them.

However, independent study is a multi-dimensional concept. First, it may be an explicit goal of the system, i.e., develop the continuous, independent learner. Second, it may be a default technique because once individualization occurs, the teacher is faced with an unmanageable range of alternatives and must rely on student independence in order for learning to proceed. If curriculum remains fixed, merely the provision for self-pacing implies heavy reliance on independent study and modularized units. Third, independent study may be viewed as an alternative means of obtaining information; an alternative to teacher transmission of information. In this latter interpretation, whenever a student is asked to read a book, independent study occurs. However, independent study is not confined to reading modules or books. "Modules" may take the form of study guides and assignment sheets for using alternative media, conducting a project, taking a field trip, or working in a small group.

While such a comparison suggests that NTID faculty might misinterpret the concepts, they correctly see that insofar as independent study of written material is concerned, reading ability and the reading level of material becomes one of the deciding factors.

> Another thing you have to be concerned with...is the whole role of reading material and college level teaching of deaf students. I ... become frustrated at times because I feel it necessary to rewrite most of the things I want my students to read. That means that sometimes I feel I should just write my own book... At the same time, I want to encourage the improvement of reading skills, and the only way you do that is to read. So I try to pick reading materials that will bridge the lecture material to the formal course books. I work hard

> on that because I'm trying to make it possible for the student to read the text without total frustration. At the same time, I feel that its necessary to provide them with written materials that gets some of the concepts across without having to struggle all the time with reading.
>
> Regarding programmed material...We would have to write all the materials ourselves...I've used materials from Westinghouse Learning Corporation..they're really fine..the students didn't understand them at all....I had to rewrite them....
>
> CBE was implemented at the Model Secondary School for the Deaf in Washington, D.C...all they do is write modules...they were doing it in 1972 and they are still doing it.

From the comments above, it might be argued that the need to write materials exist whether one is using college textbooks in a teacher-directed classroom or modules in an independent study mode. Yet the comments draw attention to the fact that CBE or any instructional strategy calling for flexible responses will depend heavily on independent work by the student and a heavy investment in instructional material development.

It becomes clear from the above discussion, that the implications of the concepts reviewed are not defined in terms of which instructional strategy becomes dominant. The teachers themselves concluded that a variety of goals and strategies must be satisfied simultaneously. The student must learn to work independently, but also must learn to work in groups. Reading materials are inadequate, but the student must learn to read. Like curriculum approaches, a variety of instructional strategies are probably required in any effective educational system. The issue is whether the teacher and the system as a whole can support such variety.

System Management and Personalized Instruction

The last section in Table 1 is the "System Management/Support Capability." While all concepts reviewed demand increasing improvement in instructional and learning systems, not all have paid corresponding attention to building the capacity to achieve the ideal. Systems are enjoined to adopt open entry-open exit, flexible time, diagnosis and prescription, alternative curriculum, and alternative learning strategies. Each element on the list raises new issues and complexities for the teacher and the school. In particular they point to the need for what might be called instructional management systems; and changed roles for teachers and administrators.

Instructional Management Support Systems

While an instructional management support system is a foundation for the school's overall management system; its primary purpose is to support the teacher in the improvement of instruction. Each of its components or functions have a direct relation to the tasks teachers must perform in the progressive individualization of instruction, and/or to activities needed to help the teacher and the system evaluate effectiveness and develop better techniques.

As indicated in Table 1, the typical components of an instructional management system include (1) student progress accounting; (2) a curriculum/resource management system; (3) an evaluation system; and (4) a research and improvement system. A conceptual description of an instructional management system to support individualization is contained in Willett, Swanson and Nelson (1979). Descriptions of developed management systems have been referenced in the reviews on CBE and Individualization.

The simplest example of how these functions relate to teacher tasks is given in the minimum standards for implementing CBE. There it was noted that the teacher must now track and control student progress by mastery of competencies. If implemented as intended, the teacher might have thirty students progressing over a list of a hundred competencies during the course of a semester or school year. In that case, the "Student Progress and Accounting System" of the instructional management system provides the clerical support needed for accomplishing the task. In CBE, the problem is simply solved by a job training chart; but the workload is nonetheless significant. In Individualization I or II, the variables measured become much more complex, and the workload increases proportionately.

When the minimum characteristics of CBE were reviewed relative to the problem posed by the systems approach, they were deemed inadequate. When they are viewed in terms of the barriers to be overcome, they might be commended as a common-sense, go-slow approach. However, even the minimum standards have not been successfully implemented without some change in traditional systems and an increased emphasis on instructional management systems.

One of the first questions regarding instructional management systems concerns the use of technology. Is it possible that the administration and teachers can capture the complexity of the school or classroom once the many advocated variables of instruction are addressed? It has been argued that adequate manual systems for instructional management can be devised. Indeed, minimum implementation of CBE already uses them, and innovative devices are growing. Yet, the adequacy of manual systems is relative to the number of variables addressed. If the system were to plan for all of the variables regarded as important in the literature, manual systems would rapidly meet their limits. Beyond this, is the question of efficiency. Does it make sense to burden classroom teachers with the clerical workload that individualization implies?

The second group of questions regarding instructional management are more important. They involve the changing role implied for administrators and teachers.

The Teacher and the Personal Element

The literature of CBE, Mastery Learning and Individualization increasingly refers to the role of the teacher as an instructional manager. But the role of "manager" need not be mentioned in order to create doubts in the mind of teachers regarding their role. As the use of independent learning techniques has increased, the traditional role of the teacher as transmitter of information and controller of group activity, has decreased. Similarly, the traditional role has been attacked as creating student dependence on the teacher and failing to address the goal of a self-directed, continuous learner.

These trends have raised concerns which were expressed during interviews with NTID faculty:

> Faculty is grappling with the problem of whether the teacher needs to be there in order for the student to learn...Will this student learn if I'm not there?
>
> How do we keep the personal element in self-paced instruction and independent media? ... Somehow we need to maintain the personal element.

To address these concerns, one should define what is meant by the "personal element." There are at least three ways of interpreting it. One is in terms of whether the student is receiving more personal attention. A second is whether the student is more personally involved in the learning process. A third deals with the teacher's perception of his/her own sense of being personally involved.

Corresponding to these three interpretations, one might analyze whether the student is receiving more individual attention when the teacher is functioning in the traditional role or in the role of manager/counselor. In the second, one might analyze the degree to which the student has an opportunity to actively participate in, or direct his own learning experiences. Personal involvement or engagement is the criterion rather than the degree of response by others. In the third interpretation, one analyzes the factors which lead the teacher to believe that he/she is personally effective and contributing in a "humanistic" mode.

An analysis of a lecture to a large group illustrates the problem. In a lecture, the teacher functions primarily as a transmitter of information. Sometimes questions are entertained in a lecture, and the situation may be transformed into a large group discussion. No statistics are available which document the frequency of this transformation. Nonetheless, an outside observer might record the number of listeners who are not listening; the number who conclude that no new information is being presented; and the number who shift uncomfortably from the need to sit long periods and maintain a semblance of courtesy. He might conclude that the lecture is an impersonal, dehumanizing experience.

On the other hand, the teacher might see it differently. He/she is actively and personally involved. A lecture is personalized because a person is transmitting the information. To deprive the teacher of a personal role in the process may lead to the conclusion that the result is a loss of the personal element.

If a personal sense of involvement and achievement is the criterion by which the "personal" element is measured, then it would appear that the teacher's and student's perception of the matter might be inversely proportional. That is, instructional strategies are usually described as teacher-centered, in which the teacher is actively engaged; or as student-centered, in which the student is actively engaged. They usually occur in inverse proportions. The possible exception of course, are strategies of direct interaction, in which both are equally participating in a joint endeavor and on a relatively equal footing. Even the strategy called tutoring doesn't seem to capture that.

The notion of instructional management systems implies greater attention to a variety of educational support systems. Curriculum and instructional resource management is an excellent example. Previously, curriculum products took the form of simple topical outlines. They were sketchy for several reasons. Chiefly because the teacher was the expert and didn't need much guidance. The curriculum guide was more of a coordination device to insure consistency between teacher and teacher, or teacher and administration. Indeed, to offer too much guidance was to impinge upon teacher autonomy and possibly constrain creativity.

The chief implication of the concepts reviewed, is to demand widely varied curriculum materials to suit many individual differences. The teacher loses one of the chief instruments of control; the fixed curriculum for everyone. Conversely, the teacher is faced with an enormous curriculum development task.

Even if the individual teacher could accomplish it, the effort would be duplicative and wasteful. It should be recognized that the current system is also wasteful. In hundreds of classrooms throughout the country, teachers are struggling with the same types of content and lesson plans. It is tolerated for some of the reasons above. But the implications of alternative curriculum and instructional materials multiply that duplication many fold.

It is increasingly being recognized that a curriculum management and development capability is needed and will be cost effective. If a three thousand dollar investment in a quality curriculum product can save 100 teachers 50 hours each per year, the payback period is less

There doesn't seem to be an adequate definition of what is meant by the personal element, but a problem of some kind clearly exists.

The Changing Role of the Administrator

A great deal of attention has been paid recently to "participatory" management in contrast to the top-down approach. That is no doubt implied in effective instructional management. However, an equally important implication from the systems perspective is the role of administration in providing the necessary mechanisms to support instructional/learning processes.

There is nothing new in the idea that if people are to perform a job, they require the necessary resources. Good managers have always recognized that; usually while juggling the always inadequate budget.

Yet, a fundamental change is implied in all of the concepts reviewed. Each advocates a more sophisticated and complex system of education; and a change in the role of the teacher, if not in the system itself. Adopting any of these concepts implies that the time has past when a good teacher can be expected to automatically control all the contingencies of a classroom experience. Indeed, many of the techniques of standardization, discipline and control, which allowed the teacher t function successfully in the past, are now the very techniques which are blamed for creating the dropout, or alternatively, the passive, dependent student.

than a year.

This does not require centralized curriculum development. Teachers can still develop materials. What is required is a systems management concept which coordinates efforts, facilitates sharing, and offers curriculum management support from the school to the classroom level. One might better say that support should extend from the national to classroom level, and indeed the National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE) is a first step in that direction. However, the concept remains valid at the school level as well.

Such concerns by no means exhaust the range of tasks involved. The major implication, however, is that administration in the new systems of education will play an increasing role in developing support systems.

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SECTION II:

OTHER CRITICAL CONSIDERATIONS

The Theory of Experiential Learning

Richard J. Kraft

THE THEORY OF EXPERIENTIAL LEARNING

by

Richard J. Kraft

I. INTRODUCTION

Experiential education is not something new. In fact, one must agree with James Coleman that the growth in experiential education in the1970's and 80's appears to be a "throwback, an anachronism," as experiential learning has always been with us and what is new, by standards of the millions of years during which persons have been on this earth, is

> ...education through assimilating information, education through being taught via a symbolic medium, learning by being given the distilled experience of others, direct memory-to-memory transfer of information. (Coleman, p. 6)

It is the overwhelming dominance of this "new" type of education with its emphasis upon vicarious experience that has led to the reintroduction of experiential learning in recent years. Non-formal and informal education are related concepts which have entered the lexicon of education to describe the educational process which occurs in settings outside the formal schools.

The experiential education movement can trace its roots back to Rousseau's *Emile* or to the Progressive Movement of the 1930's in this country, but the immediate reasons for the reanalysis of the role of experience in learning comes from the failure of contemporary schooling to meet the needs of large portions of the youth. The percentage of failures, drop-outs, push-outs, and alienated youth varies from community to community, but those percentages are significant enough, particularly in the large urban centers, to prompt educators to take a serious look at what they are doing.

Every major national study of the problems of youth, adolescents and the secondary schools and universities has made similar recommendations concerning the need for experiential modes of learning for most if not all youth in the last quarter of the twentieth century. The International Commission on the Development of Education in 1972, issued a UNESCO report calling for lifelong integration of education, work and leisure, with students leaving and returning to their studies without penalty at any time. Distinctions between in-school and out-of-school education should be eliminated, and ability to do a job, not a credential, should be the criteria for hirinr. Programs at all levels should combine theoretical, technological, practical, and manual skills, with a careful balance between theoretical studies and practical work. Lastly, education must become self-education. (Faure)

The National Commission on the Reform of Secondary Education, led by B. Frank Brown saw the secondary schools on the verge of collapse in the large cities in 1973. Little has happened since that time to change the prognosis.

Among the Commission's recommendations relating to experiential education were: The curriculum should concentrate on students' needs and interests and should include on-site experiences in the working life of the community; and students should be permitted alternate paths to graduation including independent programs involving credit for action learning. (Brown, et.al.)

The President's Science Advisory Committee, chaired by James S. Coleman in 1974, reported on the societal changes which have led to the need for greater experiential learning environments, and then recommended the following actions: offer a greater range of experiences within the school structure; alternate school and work; and encourage business and industry to create roles and provide training for youth. (Coleman, President's Commission)

The National Panel on High Schools and Adolescent Education out of U.S.O.E. in 1974 echoed the recommendations of the other panels, calling for structural and conceptual change to get away from schooling as only that which occurs in a classroom with a teacher talking to a group of students. Among its many recommendations are those related to experiential learning: respect for individual differences; the integration of schools and the broader community; preparation of students for family and work roles; and youth participation in decision-making in the society. (Martin, et.al.)

Perhaps the most far reaching, radical, and experientially oriented report is the Phi Delta Kappa Task Force on The New Secondary Education. The Task Force was chaired by Maurice Gibbons, father of the American Walkabout concept, so that it is little wonder that the report has a strong experiential bias. Among its many recommendations and propositions are the following: an appropriate set of alternatives to school must be sought; current schooling does not demonstrate any superiority over other possible systems of educating the adolescent; the current system resists change; current schooling contradicts the nature and demands of human growth and development; formal studies are more powerful when combined with concrete experiences and challenging productive activities; students need to learn from more adults and each other, not just teachers; schooling should involve gradual transitions into adult situations, issues, tasks, and responsibilities; students need to learn to select, design, implement and manage their own learning; students trained to experience and direct their own sensory, emotional, and mental functions will be better able to achieve self-understanding, self-directed learning, and self-development; and schools and communities must have much more interaction; Gibbons and the staff conclude their report with the theory and practice of the New Secondary Education. These will be dealt with later in this paper, as they include some of the more important aspects of an experiential learning environment.

In conclusion, it is the near unanimous recommendation of every major national and international commission that children and young people need to move actively into experiential learning environments, and although none of them recommend the abolishment of vicarious, symbol-based learning as it is now found in the schools, all call for a better mix between the two types of learning.

II. THE PROBLEM OF DEFINITION

One of the major problems of the experiential education movement has been its inability to agree upon a definition. This makes the task of finding the philosophical, psychological and other underpinnings of the emerging discipline that much more difficult. Morris Keeton, Executive Director of the Cooperative Assessment of Experiential Learning (CAEL), defines it as that which "occurs outside of classroom," (Keeton, 5) perhaps the broadest possible definition, while others say that it is "learning by doing." Larry McClure and his colleagues at the Northwest Regional Educational Laboratory say that experience-based programs are characterized by seven kinds of learning: "Learning how to learn; Learning about life; Learning about careers; Learning about themselves; Learning to be responsible; Learning about others; and Learning by doing; (McClure,et.al.) These who come from the outdoor/adventure-based education movement define experientia education more in line with what occurs in those settings, emphasizing such aspects as challenge and stress.

Experimential education as it is coming to be known in the 1980's has its roots in a wide diversity of settings and movements; among which are: progressive education, holistic education, vocational education, career education, clinical training, internships, apprenticeships, alternative education, adventure programming, character training, developmental theory, child and adult stage theory, and moral and ethical development, to name but a few of the more important sources.

At this point in the paper, we shall not attempt to define experiential education or learning, but rather move into a discussion of the roots from which the above mentioned movements draw. Through an anlysis of a wide variety of theoreticians in philosophy, psychology, sociology, and anthropology, it is the intention of this paper to draw towards not only a conceptual base upon which the movement can build, but also to more carefully define the parameters of the emergent discipline and come up with a definition. Where one looks for insights, of course, prejudices the direction of the final closure which we hope to reach, and it is only fair to the reader to state at the outset that this search is towards those theorists who see experience as liberating the individual and the society, rather than towards those who would use it as a perpetuator of the status quo, or to provide a docile and trained working force for business, industry or government.

It is also important to state that this is not a practical "how to do it" guide to experiential education. There are countless other such books and articles available to the general public. Finally, although this paper was commissioned by the National Technical Institute for the Deaf, the writer professes no training in the field of education of the deaf, and all comments dealing with possible connections to that field should be taken by the reader as those of a concerned educator, seeking possible applicatiaons of a new and exciting discipline to another field, and not as those of an expert.

III. THE PHILOSOPHICAL FOUNDATIONS OF EXPERIENTIAL LEARNING

It is difficult to come up with a coherent philosophy of experiential learning as few philosophers have addressed the problem at any length. Dewey's Experience and Education comes closest to providing a philosophy on which experiential educators can work, but Dewey would be the first to claim that much more needs to be said on the issue. Since experiential education is a new field of study, it is not surprising that its philosophical underpinnings should come from a variety of individuals and schools of thought. The approach taken in this section of the paper, as with other sections will be to give a brief quote from a particular philosopher and some explanation of how it relates to the building of a philosophy of experiential education and learning. The debate over epistemology, or the theory of knowledge, goes back in the history of philosophy to the Greeks, with Plato and Aristotle representing the two basic positions of rationalism and empiricism. The debate has continued to the present day and forms the basis for many of the arguments between experiential educators and those who would have us maintain the more formal school system.

A. Plato and Aristotle

> Socrates: It seems that so long as we are alive, we shall continue closest to knowledge if we avoid as much as we can all contact and association with the body, except when they are absolutely necessary, and instead of allowing ourselves to become infected with its nature, purify ourselves from it until God himself gives us deliverance. In this way, by keeping ourselves uncontaminated by the follies of the body, we shall probably reach the company of others like ourselves and gain direct knowledge of all that is pure and uncontaminated--that is presumably, of truth. (Plato, 49)

> All men by nature desire to know. An indication of this is the delight we take in our senses; for even apart from their usefulness they are loved for themselves;....With a view to action experience seems in no respect inferior to art, and men of experience succeed even better than those who have theory without experience. (Aristotle, 689-690)

In these two quotes, Plato and Aristotle set the stage for the philosopher's answer to the question, how can we know?; and the educator's question, how can we best learn or teach? Plato questions whether we can "know" anything through our senses, a position which has led the rationalists to claim that knowledge comes through the reasoning processes, not through our senses. Aristotle, on the other hand, became the father of science and knowing through our senses and experiences.

Some twenty-four hundred years after their death, the debate still rages between the anti-empirical rationalism of Plato and the empiricism of Aristotle. It is perhaps obvious that "knowledge or truth" comes to the learner both through rational and empirical means, but in the debates over educational practice, it becomes a question of emphasis, with experiential educators taking their cue from Aristotelian metaphysics and decrying the lack of experience on the part of young people today, who spend thirteen to twenty or more years in a formal school setting mastering theories which are often unrelated to the "real" world for which that education is supposedly preparing them. Science and language laboratories, vocational education and a variety of other things have entered the formal schooling process, taking their cue from Aristotle's emphasis upon the empirical, but there can be little doubt that much, if not most of formal schooling in the twentieth century has a rational base.

B. Descartes and Locke

> Thus as our senses deceive us at times, I was ready to suppose that nothing was at all the way our senses represented them to be... Since this truth, I think, therefore I am (or exist), was so firm and assured that all the most extravagant suppositions of the skeptics were unable to shake it, I judged that I could safely accept it as the first principle of the philosophy I was seeking. (Descartes, 24)

> Whence has it all the materials of reason and knowledge? To this I answer, in one word, from experience. In that all our knowledge is founded, and from that it ultimately derives itself...Experience here must teach me what reason cannot: (Locke, 89, 339)

Descartes and Spinoza carried on the Platonic rational ideal, while Locke, Hume, and Nietzsche, spoke out for the empirical, experiential ideal in their philosophical treatises. Formal schooling had become highly rational in its orientation throughout the Dark Ages and even up until the nineteenth century, so that the philosophic debates of the period tended to have little effect on practice in the schools. Schools, from primary through universities had become institutions which were separated from the societies for which they were supposedly preparing the young and were given over the lectures, recitations, and deductive forms of thinking. In the nineteenth century, the pressures of modern society were being brought to bear on the universities of the time, so that first in Germany, and later in England and the United States, "practical" forms of education such as engineering, agriculture and architecture were added to the curriculum. Practice in the liberal arts, however, still tended to be rational and theoretical, with few connections to experiential modes of learning.

C. John Stuart Mill

> ...Whatever we do for ourselves, and whatever is done for us by others, for the express purpose of bringing us somewhat nearer to the perfection of our nature; it does more: in its largest acceptation, it comprehends even the indirect effects produced on character and on the human faculties, by things of which the direct purposes are quite different; by laws, by forms of government, by the industrial arts, by modes of social life; nay, even by physical facts not dependent on human will; by climate, soil, and local position. Whatever helps to shape the human being--to make the individual what he is, or hinder him from being what he is not--is part of his education. (Mill, 333)

John Stuart Mill, the great British philosopher, was highly trained in the traditional, formal sense of the word, but recognized the importance of the experiential, non-formal aspects of his own learning, and wrote at some length on experiential ways of learning a foreign language (by living in the country), or learning many other subjects by reading and studying on one's own, rather than through formal instruction. In his own Autobiography he differentiated between his formal education and that which he gained through "self-education." (Houle, 27)

D. Peirce and James

> It appears, then, that the rule for attaining the third grade of clearness of apprehension is as follows: Consider what effects, which might conceivably have practical bearings, we conceive the object or our conception to have. Then, our conception of these effects is the whole of our conception of the object. (Peirce, 124)

> ....theories are instruments that we employ in order to solve problems in our experience...a theory is true if it works. If we ask, what do we mean by saying that a given theory or belief is true, the pragmatists answer that it has been verified and found to deal successfully with experience...James opposed the traditional philosophical view that the truth of ideas is a property independent of human experience. (Popkin, 172-173)

As precursors to Dewey, Peirce and James have had a profound, if indirect effect on the practice of education in the United States and throughout the world. The quote from Peirce above is the famous "pragmatic maxim" encouraging us to subject all ideas to the test of the empirical method. "Experience" for Peirce is the combination of ideas interacting dynamically with the external world and the senses, a more comprehensive view than that taken by either the rationalists or the traditional empiricists. As the quote from Popkin about James' thinking indicates, the pragmatists do not ignore theorizing or rational inquiry, but rather subject all theory to the crucible of experience to test its "cash value." James shared the general American distrust of purely theoretical or intellectual activity and kept asking the question, what difference does it make?

The experiential education movement owes its greatest philosophical debt to the American pragmatists. Although existentialist writers are quoted from time to time by experiential education theorists, it is to pragmatism, with its emphasis on testing truth in the crucible of human experience to which most turn for guidance.

E. John Dewey

> I assume that amid all uncertainties there is one permanent frame of reference: namely the organic connection between education and personal experience; or, some kind of empirical and experimental philosophy. (Dewey, 25)

With this quote, Dewey places himself and the pragmatists squarely in the camp of the empiricists, and ties that tradition of philosophy to education in society. Whereas other philosophers spoke primarily of theory, Dewey, in his Experience and Education speaks eloquently of a philosophy which directly impacts what occurs in the school or other learning settings. Dewey, unlike many of his followers in the Progressive Education Movement, or even an occasional voice in the current Experiential Education Movement, does not equate experience and education.

> The belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative...some experiences are mis-educative... any that has the effect of arresting or distorting the growth of further experience...engenders callousness...produces lack of sensitivity and of responsiveness...Everything depends upon the quality of the experience which is had. (Dewey, 25-26)

A proper understanding of the miseducative nature of some experience is critical for not just an understanding of Dewey, but also so that experiential educators do not fall into the same traps which destroyed the Progressive Education Movement in the 1930's. This is not to say that one cannot learn from any and all experiences, but Dewey warns us that unless the principles of continuity and interaction are carefully considered, an experience can all too easily be miseducative. By continuity, Dewey is referring to an experiential continuum. Growth, or growing as developing, physically, intellectually and morally, is one exemplification of his principle of continuity. It is growth in a positive direction, however, and it is here that ethics or values enter the picture. Space does not permit a discussion of Dewey's ethics, here. Suffice it to say, the growth through any experience must create the conditions for further growth, according to Dewey, or it is miseducative.

Dewey reemphasizes that experience does not take place strictly within the individual learner, but has an active side which changes the objective conditions under which experiences are had. This led Dewey to warn educators:

> Above all they should know how to utilize the surrounding, physical and social, that exist so as to extract from them all they have to contribute to building up experiences that are worthwhile...the teacher should become intimately acquainted with the conditions of the local community, physical, historical, economic, occupational, etc., in order to utilize them as educational resources. (Dewey, 40)

Dewey's second criteria of experience, interaction, assigns equal weight to both factors in experience-objective and internal or subjective conditions. Experiences always involve a transaction between the individual and what constitutes his environment at any given moment, whether that be the child in the classroom, the apprentice in the shop, or the climber on the mountain. Continuity and interaction are characterized by Dewey as the longitudinal and lateral aspects of experience. Dewey juxtaposes traditional education with experience-based education in his initial chapter.

> To imposition from above is opposed expression and cultivation of individuality; to external discipline is opposed free activity; to learning from texts and teachers, learning through experience; to acquisition of isolated skills and techniques by drill, is opposed acquisition of them as means of attaining ends which make direct vital appeal; to preparation for a more or less remote future is opposed making the most of the opportunities of present life; to static aims and materials is opposed acquaintance with a changing world. (Dewey, 20)

Although other educators have made similar comparisons, as will be shown in later sections of this paper, Dewey's listing provides a good starting point for any definition of experiential learning. Some key aspects of Dewey's definition might be paraphrased in 1980 as: Individual learner involvement in what is to be learned; learning through experiences inside and outside the classroom, and not just from teachers; learning through experiences immediately relevant to the learner; living in the present and not just preparing for the future; and finally, preparation for a changing world. It is presumptuous to attempt to cover Dewey in a short three pages, so the reader is referred back to Experience and Education, Democracy and Education, and Experience and Nature for a more detailed discussion of the philosophical roots of Dewey's educational ideas.

Dewey concludes Experience and Education with a chapter titled, "Experience-The Means and Goal of Education," and argues that:

> Education in order to accomplish its ends both for the individual learner and for society must be based upon experience--which is always the actual life-experience of some individual...The educational system must move one way or another, either backward to the intellectual and moral staudards of a pre-scientific age or forward to ever greater utilization of scientific method in development of the possibilities of growing, expanding experience...There is no discipline to the tests of intelligent development and direction. (Dewey, 89-90)

Dewey would bridle at the extreme individualism of many of today's experiential educators, who appear to emphasize the individual, almost mystical experience, of the mountaintop, as opposed to the building of a more democratic society, one of Dewey's continuing themes. We would also scorn those who see experience, whether a field trip, wilderness camp, or apprenticeship, as the "easy" way of teaching and learning. Rigor and discipline in the "new", "progressive" education were constant themes of Dewey's, as he had observed the fruits of the almost whimsical progressive education movement, and the lack of effect it had on the educational mainstream of American schools. Experiential educators of the 1980's would do well to read American educational history, so as not to fall into the same traps.

[illegible]. Mao Tse-Tung

> All genuine knowledge originates in direct experience...human knowledge can in no way be separated from practice...practice is higher than (theoretical) knowledge...Whoever wants to know a thing has no way of doing so except by coming into contact with it, that is, by living, (practicing) in its environment...practice, knowledge, again practice, and again knowledge...such is the dialectical-materialist theory of the unity of knowing and doing. (Mao, 8, 7, 20)

With the death of Mao, the Chinese have repudiated many of Mao's political and educational ideas, and without question have downgraded the importance of the experiential, from where it was during the Cultural Revolution of 1966-76. Even with the "revisionists" or "traditionalists" now in power, the educational system still contains many elements of experiential learning. Production of goods for sale still continues in most primary and secondary schools, city children still spend time in the countryside during harvesting season helping the farmers, and May 7 Cadre Schools still train the bureaucratic elites in simple, rural settings. Although the universities have returned to a more competitive, selective, and traditional mode, July 21 Worker's Universities and Polytechnic Institutes continue on the experiential tradition of the Cultural Revolution.

Mao's works were written only one year prior to Dewey's influential book, Experience and Education. But while few of Dewey's ideas were put into widespread practice, Mao dramatically influenced not only the education of one-fourth of the world's people in China, but established a model and theory of experiential learning which has been copied, at least in part, by numerous Third World countries. It is interesting to note that a Brazilian, Paulo Friere and a Chinese, Mao Tse-Tung, have had perhaps the greatest practical effect on experiential modes of learning, while world renowned philosophers such as Dewey, languish on the book shelves, or serve as the source of discussion among educational theorists, but seldom find their way into educational practice in the U.S.

It is this writer's opinion that the cause for this is the dichotomizing of education and politics which occurs in the United States andmost other Western nations. This is not to say that education is not political, but rather that education is primarily seen as a promoter of the status quo and a passing on of a cultural heritage, and the vicarious, symbolic modes of traditional educational practice are more conducive to producing a passive citizenry. Frier'e exile from Brazil and the adoption of his methods by revolutionary regimes, along with the changes wrought in China during the educational experiments of the Cultural Revolution, point to the likely conclusion that experiential learning can and does have a "liberating" effect on its participants, and can lead to profound personal and societal change.

G. Paulo Friere

> Liberation is a praxis: the action and reflection of men upon their world in order to transform it...When a word is deprived of its dimension of action, reflection automatically suffers as well; and the word is changed into idle chatter, into verbalism, into an alienated and alienating "blah"...On the other hand, if action is emphasized exclusively, to the detriment of reflection, the word is converted into activism... Men are not built in silence, but in word, in work, in action-reflection (Friere, 66, 75-76)

Paulo Friere is a Brazilian educational philosopher, who has had perhaps the greatest effect on educational practice throughout the world during the past decade, and his thought, as excerpted above, makes extensive use of the dialectic of action and reflection as the two inescapable aspects of any true or liberating education. He makes a strong case that contemporary education is given over to what he calls a banking concept of education, in which the teacher makes deposits on the brains of the students. This is the alienating verbalism of which he speaks above. On the other side of the coin, however, he condemns those educators who would be involved in actions, strictly for their own sake, as many of the educational and political movements of the sixties and seventies were, as this is meaningless activism.

While traditional education as we know it today is, without question, caught on the verbalism horn of Friere's Dialectic, experiential education is all too often caught in meaningless action which neither liberates the individual nor changes the society in which those individuals find themselves. Friere's educational theory is not politically neutral, but rather seeks to change the world, through the learners' participating in their own liberation and education. It is cooperative, non-manipulative, dialogic, active, and reflective education.

The educational philosophy of Friere, brings once again to the forefront of educational thinking the necessity of the cognitive, the rational, the reflective as we find it in traditional, symbolic, vicarious education as practiced in the schools, while at the same time pointing to the need for active learning outside the classroom, which will change the personal and social realities of the learner.

H. Robert Pirsig

> The real cycle you're working on is a cycle called yourself. The machine that appears to be "out there" and the person that appears to be "in here" are not two separate things. (Pirsig, 319)

In his highly influential book, Zen and the Art of Motorcycle Maintenance, Robert Pirsig helps to differentiate experiential learning in the way in which we would like to approach it in this paper, from experiential learning as defined in traditional vocational education programs, internships and other settings familiar to generations of American educators. The differences are ones of means and ends, process and product, behaviorally defined goals and serendipitous learnings. While traditional "experiential" programs see the "repair of the cycle," as the goal, end, or purpose of the activity, experiential educators in the new mode, see the cycle as but one of the many vehicles for helping the learner not only to learn "cycle repair," but also to gain insight into oneself, to approach learning as something intrinsic to the learner and not imposed by external sources, and to go beyond the traditional goals of learning a skill and go to the very heart of the rational/scientific method.

The example of the motorcycle was specifically chosen, as most of the new breed of experiential educators see the wilderness, American subcultures, and traditional, non-mechanical trades as their source of inspiration for experiential learning, but rather than fall into such a trap, one should take seriously another quote from Prisig as we define and theorize about experiential learning throughout this brief paper.

> The Buddha, the Godhead, resides quite as comfortably in the circuits of a digital computer or the gears of a cycle transmission as he does at the top of a mountain or in the petals of a flower. (Pirsig, 18)

Those who are unacquainted with experiential education, particularly as it has been defined and practiced by those persons in the Association for Experiential Education (AEE), may not see the need for Pirsig's caution, but to do justice to breadth and depth of the experiential learning process, it is necessary to state that experiential learning as it is being discussed in this paper is not just Outward Bound, adventure-based education, outdoor education Foxfire, or apprenticeships in boat building or blacksmithing, but rather includes all those environments in which learner is actively involved in his or her own learning, and not just a passive recipient of the knowledge of the teacher.

I. Kurt Hahn

No discussion of the theory of experiential education would be complete without some recognition being given to Kurt Hahn, the founder of the Outward Bound movement in Great Britain following World War II. Hahn lashed out at his native German education as setting tasks which bear little relation to the age and stage of development of children, nor in keeping with their interests. He saw most reforms as artificial, leading to little or no meaningful change in the system or in the classroom climate. One of his constant themes was the need for an attractive environment for learning to take place. For political reasons he was compelled to emigrate to Great Britain, and it was there that his concepts of "rescue" and "internationalism" bore fruit in such schools as Salem and Gordonstoun, and later in the Outward Bound Schools. (Rohrs)

Hahn saw service to one's neighbor and in the cause of peace as major aspects of any educational program, and service has continued as part of the Outward Bound movement, since that time, although perhaps downgraded in importance in the American schools in recent years. Hahn saw adventure as a critical activity for youth, and one which was missing in most modern societies. It was to lead to a sense and wonder and astonishment, qualities so lacking among contemporary youth.

Hahn saw the morally responsible man, not the scholar or artist, as the ideal for his school. Justice was to be sought, and the schooling process which taught only the basic skills was only doing a small part of its task. (MacArthur, 8) Hahn's ideas had a strongly religious, Christian base to them, but the institutions he founded have continued on in a more secular mode, while continuing to provide adventure and service and to seek a more just world.

IV. THE PSYCHOLOGICAL FOUNDATIONS OF EXPERIENTIAL LEARNING

This second major section on the theory of experiential laerning will draw from a variety of sources including the major schools of psychology; Freudian, Behavioral, Humanistic and Transpersonal, in addition to educational psychology and learning theory. As with the section on the philosophical foundations, no pretense is made that all possible sources have been tapped, or that significant depth is to be found on any of the various sources from which experiential learning draws its insights. Experiential education has no well developed psychology or learning theory, so that once again its foundations are eclectic and are only now being explored. Of the various schools of psychological thought, experiential education has been most closely allied to the humanists, with Rogers and Maslow, in particular, having a profound impact on many practitioners. In recent years, however, with experiential programming for delinquents, dropouts, handicapped, and other special populations, insights from behavioral psychology have been making ever greater inroads. Finally, a growing number of experiential educators have been exploring insights from transpersonal psychology, as they relate to the individual's relationship with the cosmos and the environment. Through yoga, Transcendental and other forms of meditation, and other "spiritual" sources, experiential educators have been attempting to stretch the boundaries of human potential.

Before discussing concepts from the basic schools of psychology and how they relate to experiential learning, we shall turn our attention to basic research on learning theory and developmental psychology, as this appears to be one of the most promising areas upon which experiential education can base its theory. Of the various developmental and learning theorists, the most promising appears to be that of Jean Piaget.

A. Jean Piaget

Stages in the Mastery of Operations

Age Level	Designation	Principal Features
0-2	Acquiring Sensorimotor Control	Extensive trial-and-error movements develop bodily control and eye-hand coordination. The perceptual field is organized into objects.
2-	Extracting concepts from experience	Words heard are associated with objects Concepts are formed for recurring experiences
4-	Intuitive use of concepts	Direct perceptual comparisons are accurate. Associated concepts are confused. Complex situations are reacted to as unanalyzable. Wholes: conclusions are based on superficial impressions.
7-	Concrete operational thought	Comparisons requiring one to hold information in mind are accurate, if the information is presented concretel Operations can be imagined and results anticipated. Adjustment by reversal leads to an exact result. Associated concepts are distinguished; one can be changed while the other stays fixed
11-	Formal operational thought	Operations among symbols or abstract ideas can be carried out in the mind. A complete array of logical possibilit can be systematically considered. Relations involving more than one variable can be comprehended. Accurat comparisons and deductions can be made from information not concretely presented. (Cronbach, 336)

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One of the most critical questions in psycholinguistics is; are thought and speech inseparable? Watson, the behaviorist, answered strongly in the affirmative, holding that thought processes were but motor habits of the larynx. Piaget is strongly in opposition to the behaviorist tradition on this critical point, holding that cognitive development proceeds on its own, generally followed by linguistic development and finding reflection in a child's language, but that language in itself does not bring about cognitive growth. Piaget's critical point for experiential educators is that intellect grows through interaction with things and people in the child's or adult's environment. Although Piaget locates each stage on an age scale, there are no abrupt transitions, and a learner may be at a formal operational stage in one concept and at an intuitive or concrete operational stage in another. Intellectual development consists of the mastery of one concept after another, through pertinent experience.

Piaget, Inhelder and other Piagetian experimenters have shown that the "lattice" or "lens" which organizes a child's perceptual world is not necessarily language, but rather is developed through the "actions of the child on the environment." (Inhelder, 163) Furth, through his research with deaf children, provides some of the strongest backing for this position. A discussion of Furth's research will be made at the end of this paper, as it related directly to the role of experience in the lives of deaf children and adults. Furth's research points to the conclusion that deaf children are not drastically different from hearing children in intellectual performance, and that they follow the same basic Piagetian stages, though at times at a slower rate. Slobin's statement is of extreme importance to experiential educators and deaf educators alike:

> It is quite likely, though, that this occasional slowness may be due not so much to specific lack of language as to general lack of experience, given the sort of environment in which many deaf children are raised. (Slobin, 116)

Even an adult cannot think abstractly without a base of experience. Intellectual development consists of the mastery of one concept after another, though pertinent experience.

The implications of Piagetian thought for the practice of education in general and of experiential education specifically are numerous. We shall only point out some of the more obvious and important ones here. His research on stages provides strong justification for the use of the most concrete and action oriented context possible in presenting concepts or ideas, moving progressively to more internalized modes, from objects to symbols of objects and from motor action to speech. Experiential educators at all levels have known this intuitively, but the practice of schooling has too often been to introduce the symbolic at too early an age, or too early in the learning process in the lives of adults who generally function at the stage of formal operational thought.

Piaget also emphasizes that in "genuine learning" the child or adult regulates his or her own activities, decides what needs to be learned, sets the pace and selects certain kinds of activities. This self-direction, though not always part of experiential learning environments, has become a critical aspect of many of them. Interest is another concept which comes through in Piaget. Learners learn best that in which they are interested.

Perhaps this is an obvious statement, but one which traditional education all too often forgets. Piaget warns against superficial learning through rote memorization. Free time in which students, be they small children, adolescents or adults is important in the educational setting, so that students can find things out for themselves and discover things on their own. Direct training is not ignored by Piaget, however, as research indicates that children make more rapid progress towards operational thought when given direct training.

B. James S. Coleman

While James S. Coleman is a sociologist by training, he has written one of the best comparisons between "Experiential and Classroom Learning." In fact, one might say that he has become to contemporary experiential education, what John Dewey was to Progressive Education. Coleman gives classroom learning the title of "information assimilation," and carefully points out that most of the learning that takes place in class proceeds through instruction, while much, if not most, of the outside of class learning, "proceeds through acting (or in some cases, seeing another act), and then experiencing or observing the consequences of action." (Coleman, Experiential Learning, 50)

Coleman outlines the steps followed in both types of learning.

Information Assimilation Process: Steps in Learning

1. Receiving Information: Information is transmitted through a symbolic medium... lecture, book...General Principles...Commit information to memory.
2. Assimilating and organizing information so that the general principle is understood...learned the meaning of the information...lead to understanding a generalization.
3. Being able to infer a particular application from the general principle... implies some cognitive abilities.
4. Moving from the cognitive and symbol-processing sphere to the sphere of action...knowledge gained is actually applied. (Coleman, 50-51)

Coleman goes on to point out that experiential learning proceeds in almost a reverse sequence, and does not use a symbolic medium for transmitting information, as the information is generated through the sequence of steps itself.

Experiential Learning Process: Steps in Learning

1. Carry out an action in a particular instance and see the effects of that action.
2. Understanding these effects in a particular instance...has learned the consequences of the action...and how to act to obtain his goals in this particular circumstance.
3. Understanding the general principle under which the particular instance falls...it does not imply an ability to express the principle in a symbolic medium (words)...only the ability to see a connection between the actions and effects over a range of circumstances.
4. When the general principle is understood, the last step is its application through action in a new circumstance...the actor anticipates the effect of the action. (Coleman, 52-52)

Coleman suggests that schools use both learning processes, but that they seldom raise the issue of the appropriate mix of the two approaches to learning. Since school is the institution in society designed to pass on the cultural heritage, it is not unexpected that information assimilation is the dominant mode of learning, as it can reduce the time and effort needed to learn something new. The wheel need not be reinvented with each generation. Coleman agrees with Bruner that structure is needed to tie together otherwise disparate facts, but goes on to say that information assimilation through symbolic media is not the only or necessarily the best way of doing so.

Information assimilation is also highly dependent on the symbolic medium of language.

> "The first step required the ability to understand the language, to assimilate information that uses that language as a medium. The second and third steps require processing of information that still lies in the form of words...Thus there is the cost to the compression of experience through language, a cost that lies in incompletely understood language, defects in chains of associations that words may bring, defects in processing of information stored in the form of words and their associations. Indeed, this process of learning depends on prior learning of a complex system of symbols." (Coleman, 55)

Persons who have learned the symbolic medium poorly, who are still too young to have learned it well, and the culturally disadvantaged in linguistic and verbal skills, are groups to whom Coleman points as having difficulty with the information assimilation mode of learning. It is in the second and third steps of applying what is learned, that the information assimilation model usually breaks down, as even students who have mastered the symbolic medium, are all too often unable to translate the learnings into concrete sequences of action.

A third difficulty with the information assimilation model is its dependence upon artificial or extrinsic motivation. This is due to the fact that the action (the intrinsic motivation) comes at the end of the learning sequence, thus grades and other external motivations must be supplied to motivate the learner.

Experiential learning on the other hand is a time consuming process because it involves "actions sufficiently repeated and in enough circumstances to allow the development of a generalization from experience." (Coleman, 56) Ideally it uses no symbolic medium and consequences follow actions immediately. In practice, however, this is not always true, as consequences may take months (as in the birth of a baby), to follow specific actions. When consequences do follow in an observable period of time, experiential learning provides a direct guide for future action. There is no hurdle from a symbolic medium to action. Coleman suggests that this bypassing of the symbolic medium may account for the inability of some learners to show on paper and pancil tests, that they have learned the information, even though their behavior may evidence the knowledge.

Motivation is intrinsic in this mode of learning, as action occurs at the beginning of the sequence, and if the learner is to gain his ends through the action, he must learn the necessary information to guide that action. The third step, that of generalizing from particular experiences, is the weakest link in the experiential learning process, but this difficulty appears in information assimilation processes also.

Finally, experiential learning appears to be etched more deeply and permanently on the brain of the learner, as all learning can be associated with concrete actions and events, not just abstract symbols or general principles.

C. Jerome Bruner

One of the most influential learning theorists in the past two decades is Harvard psychologist Jerome Bruner. Bruner points to two other modes of representation besides linguistic representation. A primitive, but useful mode, is through action or through "doing." Some things are better learned or demonstrated by doing. Such "outdoor" or "adventure-based" activities as knot tying, rock climbing, river rafting, or any number of other skills must be "done" to be learne Bruner calls this form of cognitive organization "enactive representation," and defines it as a process of representing past events through motor responses. Iconic representation or visual imagery is a second form of representation and symbolic representation, such as language, is the third form. As children mature through their developmental stages, they are increasingly able to use symbolic representation to integrate their experience. (Mathis, 198)

In his highly influential book, Toward a Theory of Instruction, Bruner makes the case that children are innately curious and are capable of learning far more at a much earlier age than had been traditionally thought. Education, for Bruner, is the process of reorganizing experience, and the emphasis in learnin should be on the process not the product. Students are participants in the learning process, not receptacles into which knowledge is to be poured. He emphasizes the intrinsic rewards of learning, rather than placing the emphasis upon extrinsic rewards and punishments as do behaviorists. Finally, his theory of instruction emphasizes inquiry and discovery, and attempts to use problem solving methods, rather than more traditional lecture, recitation, and rote memorization approaches. (Bruner)

Although Bruner's theories of instruction have had more influence on the classroom behavior of teachers than it has on out-of-school experiential approaches, there can be no denying its applicability to such settings. Experiential educators seek to enable students to use whatever environment they find themselves in and to learn skills, understandings or concepts, and such educators strongly agree with Bruner's emphasis upon process rather than product. Student choice and participation in structuring the learning environment is critical to any successful experiential learning environment and is closely related to the intrinsic rewards which characterize such learning experiences. Although many experiential learning programs have skill development aspects to them, which are highly structured for reasons of safety, be it an auto repair shop or rock climbing, most have moved strongly towards Bruner's emphasis upon the need for discovery and problem solving as critical aspects if any "true" learning is to take place.

As Bruner's influence has waned in the classroom during an era of "back to the basics", his theories are being proven in countless other settings.

D. Maria Montessori

"The environment should contain the means of auto-education." This basic principle of Maria Montessori can be restated that the child educates him or herself. Montessori developed her methods in protest to schools which followed the needs of the adult, not the child or the learner. Montessori took as her basic method to impose nothing, but to create a school environment in which the child can "do-and-think" for himself. Children learn through their own developing mastery of experiences. (Montessori, 1972)

Although these basic insights were developed for use with pre school and elementary age children, they have been adopted by experiential educators in a variety of ways, for use with adolescents and adults. Montessori's emphasis upon the learner rather than the teacher, is crucial to an understanding of the experiential method, as is her emphasis upon the creation of, or use of the environment, as a learning tool. Whether one is in the wilderness, in a workshop, or utilizing the city as a school, the environment itself becomes a teacher, and the learner "discovers", "does" and "thinks" about that which is to be learned from the experiences in that environment. Another insight to be gained from Montessori is the developmental stages she set in the mastery of experiences. Whether it is the step-by-step procedures of safety in a mountain climbing exercise or the writing skills needed to carry out cultural journalism, experiential education emphasizes the need to master certain skills before moving on to higher stages.

E. Insights from Freudian Psychology: Freud and Neill

Despite the fact that A.S. Neill, one of the most influential educators of the past thirty years, was deeply influenced by Freud in his writing of Summerhill and in his educational practice at that particular institution, his influence and that of Freudians in general has not been of a direct nature, but more in the subtle ways in which schools and teachers work with children. Unlike behaviorists and humanists, leading Freudians have not written extensively on education, although much has been written about the related field of child rearing.

Although Neill cannot speak for all Freudian psychologists or educators, most would probably agree with his insight that the aim of life is to find happiness, and that the traditional school systems do little but prepare students for a sick society through their drudgery. Neill) Sexuality and psychological and biological determinism are major themes of Neill and Freud, with an emphasis on the need for non-repressive sexual experiences for children and adolescents, and a recognition of biological readiness which must precede any internally motivated learning. The role of the unconscious in human behavior is a primary concept of Freudian psychology, and a variety of educators, such as Richard Jones, in his Fantasy and Feeling in Education have made the case that creative potential can be unleashed in all students if we can but tap the unconscious. (Jones)

Freud's discussion of the id, ego and superego have been translated in recent years by Berne and others into the concepts of parent, adult and child in transactional analysis, with the id corresponding to the child, the ego to the adult and the superego to the parent. (James and Jongeward) Numerous classes in transactional analysis have been conducted for teachers, and the concepts are not being taught even to pre-school children.

Experiential educators have written little or nothing about the role of Freudian psychology in the movement, but most share Neill's abhorrence for the "drudgery" of the traditional school classroom and would share his enthusiasm for the joy of learning, when the motivation comes from within the student. They also owe him a great debt for stating the most extreme case for change in the public school, so that educators who now seek even minimal changes are not looked upon as such educational heretics.

The movement has also sought less repressive environments for students, an idea perhaps traceable to Freud and his discussions of repression and its causes. Although most experiential educators would not see themselves as deterministic in their viewpoints as many Freudians, they nevertheless owe a debt for the insights gained about human behavior and motivation.

F. Insights from Behavioral Psychology

Behavioral psychology has had a deep and long-lasting impact on American education. In fact, one could make the case that it dominates the American educational scene today, through such related programs as behavioral objectives, competency-based education, reward and punishment schemes for learning and discipline, and a host of related aspects. Although most experiential educators, at least of the adventure-based variety, reject the label of behaviorists, there can be no denying behaviorism's impact on many aspects of experiential learning.

One initial impact has been to "clarify" what one is doing. Instead of accepting testimonials from participants in experiential programs, behaviorists have insisted that goals be stated in measurable terms, and that programs be evaluated on the bases of those goals. Appropriate learning experiences can be more carefully planned when clear objectives have been written. Where experiential educators have trouble with the behavioral objectives movement is in the serindipitous aspects of the learning experience which cannot always be programmed, and in the emphasis upon process which sometimes precludes exactitude in stating learning outcomes. Behaviorists would deny that these are drawbacks to stating clear objectives, but they are accused in turn by humanists and others of reductionist thinking, and teaching only that which can be predetermined and measured, things hardly in keeping with what most experiential educators see as the r educational task.

The accountability movement, coming out of behaviorism, has also had an impact on experiential educators. No longer can educators "do their own thing," be it in the classroom or elsewhere, without being responsible to the taxpayer, parents, students and others for the learning experiences they have designed. While this has forced a cutback in some types of learning environments, it has also forced traditional and experiential educators to define for their publics, what it is they are doing and whether it was "worth the time, money and effort."

Reinforcement, or the idea that it is a consequence of an action that makes that action more likely to be repeated is another basic concept of behaviorism. The intrinsic/extrinsic distinction is based on whether the behavior is reinforcing itself or whether it is reinforcing because of subsequent rewards that are not an integral part of the behavior. Experiential educators are likely to claim a much greater use of intrinsic rewards through such things as pride of achievement, joy of learning, aesthetic or physical pleasure, than would most traditional educators, who are more likely to use grades or other extrinsic stimuli to promote appropriate behavior or learnings. The same could be said of the classification of reinforcements as positive or negative. Experiential educators see themselves as using primarily positive rewards, leading to recurrence of positive behavior, while holding that traditional education uses too many negative reinforcers to motivate and control students. A final categorization of reinforcement is self-administered, social (from someone else), and impersonal. Experiential educators like to claim that their reinforcers are more of the self-administered variety, but particularly in some of the more recent programs dealing with delinquent youth and special or handicapped populations, there would have to be a recognition of the use of social reinforcement, as the populations are not participating of their own accord.

Some of the rules of reinforcement are:

> Choose an appropriate reinforcement.
> The reinforcement should come after the behavior.
> The reinforcement should come as soon after the behavior as possible.
> Many small rewards work better than a few big ones, especially for shaping. (Roberts, 137)

Experiential educators have for many years recognized the validity of these principles, through the use of environments which provide rapid, appropriate reinforcement for the learner. This is true whether the reinforcer is a paycheck for a paid internship or falling off a cliff, because a knot was tied improperly. Rather than having to "wait until one grows up," or "seeing the relevance of what I am teaching you several years from now," experiential education is geared to giving immediate and appropriate feedback to the learner.

It can be concluded that there is no way not to use behavior modification, and that what behaviorism has contributed to the experiential education movement is a greater sense of accountability, a push for clarity of goals, and a better understanding of the role that reinforcement plays in the learning process.

G. Insights from Humanistic Psychology: Maslow and Rogers

If Freudians can be characterized as counselors attempting to cure the pupil, the behaviorists as engineers, structuring the appropriate reinforcements, then humanists could be seen as facilitators of learning, helping students to achieve their highest potential. As with Freudian and Behavioral psychology, it is difficult to characterize a whole field, but there are certain themes which come out, particularly from Carl Rogers and Abraham Maslow, the two humanistic psychologists, who have written and spoken extensively on the role of their perspectives for education. As stated earlier, experiential educators have tended to see themselves as being based most firmly in this camp of psychologists, but as has also been shown in earlier sections, they have not been uninfluenced by other perspectives. The following chart summarizes many of the perspectives in which the humanists see themselves differing from more traditional, subject-centered schools, classrooms and teachers.

Traditional, Subject-Centered Schools	Contemporary, Student-Centered, Humanistic Schools
1 Teacher controls all aspects of learning	1 Learning environment is cooperatively developed by parents, students, and teacher
2 Facts dominate the curriculum	2 Discovery, inquiry, and meaning are more important than discrete facts
3 Rigidity	3 Flexibility
4 All students do the same thing at the same time	4 Individualized education and varying the program to meet the needs of each child
5 Isolation from society	5 Integration with the society
6 Sterile environment	6 Creative environment
7 Emphasis on permanence and tradition	7 Emphasis upon change and the future
8 Product	8 Process
9 Control and constraint	9 Freedom
10 External discipline	10 Internal discipline
11 Authority	11 Self-actualization
12 Subject centered	12 Person centered
13 Emphasis on teaching	13 Emphasis on learning
14 Competition	14 Cooperation
15 Only the best succeed	15 Everyone succeeds
16 Group works at same rate	16 Individualized rates
17 Learn only from teacher	17 Learn from fellow students
18 All education in the school	18 Education in many environments
19 Adults are responsible	19 Children are responsible
20 Children perceived as untrustworthy	20 Children perceived as trustworthy
21 Intolerance of ambiguity	21 Tolerance of ambiguity
22 Controlling	22 Freeing

(Van Scotter, 275)

H. Abraham Maslow

Maslow held that human nature had been sold short by Freudian and Behaviorist psychological theories, with their attempts at being objective, detached and value free. Humanists or Third Force Psychologists, as Maslow called them, reject this perspective and seek to help persons discover ultimate ends and values. They reject the Freudian conception of instincts in favor of a conception of basic needs, Maslow's hierarchy of needs being the most explicit humanist outline. Maslow saw the goal of education as not just satisfying the lower needs of persons: hunger, sex, etc., but to reach the highest levels of need, namely, "self-actualization." Maslow stated that Freud's error was seeing the unconscious as an undesirable evil, and not as a place from which creativity, joy, happiness, and goodness could also come. Maslow emphasized the "love for, awareness of, and reverence of the body," as paths to lead persons to peak experiences. (Maslow, 1968) He saw traditional schooling as "collecting associations, conditionings, habits, or modes of action...as if these were possessions

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which the learner accumulates." (Maslow, Fall 1968) Teachers are active in this paradigm and the pupil is the passive one to be shaped and taught through an indoctrination process. The values, goals and ends of the learner are ignored. Maslow states that "The experiences in which we uncover our intrinsic selves are apt to be unique moments, not slow accumulations of reinforced bits." It is through these unique moments that persons discover their true identity, not the traditional learning situations in schools. The teacher in Maslow's conception is the "Taoist helper and is receptive rather than intrusive. (Maslow, Fall 1968)

I. Carl Rogers

Carl Rogers reflects most of the same perspectives as Maslow, emphasizing the higher needs of persons, the role of the teacher as facilitator, the involvement of the student in the selection of what is to be learned, and that the teacher cannot really teach anything, but only that a learner can learn, for his or her own intrinsic reasons.

In addition to many of the same themes as Maslow, Rogers emphasized the dearth of creativity which pervades our schools and culture, and that our educational system turns out conformists and stereotypes whose education is "completed," rather than producing freely creative and original thinkers. In order to be creative, Rogers emphasizes the need for "Openness to experience: Extensionality." Persons who are open to experience, lack rigidity and permeability of boundaries in concepts, beliefs, perceptions, and hypotheses. They are able to tolerate ambiguity and deal with conflicting information without forcing closure.

Another major theme of Rogers is the locus of evaluation, which he sees as internally, rather than externally located. The critique, judgment, and evaluation of any given activity comes from within the person, not from others. Acceptance of self and others, empathic behavior towards other beings, and psychological and emotional freedom are other themes which come through in many of Rogers' writings. (Rogers, 1969)

It is not too difficult to see why most experiential educators look to the humanist psychologists for their direction, as so many of their themes are parallel. The emphasis upon the learner rather than the teacher, with the learner participating in all aspects of structuring the learning situation and in the evaluation of what is learned is one such theme. William Glasser the founder and leading proponent of Reality Therapy, could be considered to be within the Humanistic Psychology movement, even though some of his ideas come from the Behaviorists. His emphasis upon "success experiences" for children in his book Schools Without Failure, has also become an important component of most experiential learning situations. Challenge must be there, but the challenge must not be so difficult that the student cannot succeed. Humanistic psychology's emphasis upon internal motivation and evaluation are also echoed in the literature and practice of experiential education, as is the role of the adult or teacher, who is seen as a peer teacher or facilitator of discovery, rather than as the source of knowledge. The process orientation of the humanists coincides nicely with most of the emphasis in experiential learning, particularly in those situations in which end goals have not been clearly specified, but rather are open to wherever the learner wishes to take it.

A high percentage of the research on various experiential programs has been done in the area of self-concept, rather than in cognitive domain. This is in keeping with the humanist's emphasis upon the affective development of the learner, and although neither experiential educators nor humanist psychologists would deny the role of the cognitive or intellectual development of the learner, they both tend to strongly emphasize physical and emotional growth.

Much more could be written about the relationship of these areas, but suffice it to say that much of the impetus for experiential education has come from humanistic psychologists and their followers in and out of the public schools.

J. Insights from Transpersonal Psychology

Over the past decade, transpersonal psychology has become a "Fourth Force" in thefield of psychology, and while its impact on education has been limited, experiential educators have been among the first to adopt and adapt some of its ideas. The following chart summarizes many of its basic positions, and the movements which are part of it.

Methods of Self Development: Personal and Transpersonal

	Mode of Experience		Methods of Development
	Title	*Description*	
Personal	1. Physical	The five senses	Sensory awareness, dance, diet, sport, massage, exercise, Rolfing, Polarity therapy, Hatha Yoga, Alexander technique
	2. Emotional	Love, anger, sadness, joy, etc.	Psychotherapy, music, art, T.A., play therapy, bioenergetic, encounter, psychodrama, gestalt, co counseling
	3. Mental	Intellect, discursive thinking	Empirical research, scholarly research, math, Language, philosophy
	4. Personal Integrative	Capacity for fulfillment in outer life, the world	Psychoanalysis, psychosynthesis, Existential therapy, direct decision therapy, behavior modification
Transpersonal	5. Intuitional	Empathy, vague ESP, imagery	Spontaneous imagery, visualization, analytic psychology, guided fantasy, dream analysis, self-hypnosis
	6. Psychic	Parapsychological phenomena	Bio feedback training, Scientology, psychedelics, directed meditation, yoga, psychic training, astrology, tarot
	7. Mystical	Experience of Universal Oneness, Unity	Dance, asceticism, prayer, Bhakti yoga, Quiet meditation, meditation in action
	8. Personal/Transpersonal Integrative	Simultaneous experience of all dimensions	Arica Training, Gurdjieff method, Zen Analytic Psychology, Psychosynthesis, Yoga, Sufism, Buddhism

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One cannot claim that a significant number of experiential educators have become deeply involved with transpersonal psychology, but several practitioners of adventure-based programs have, in recent years, moved beyond river running and mountain climbing and into the use of a variety of new techniques to help the learner delve much deeper into him/herself. In a sense, adventure-based educators have found that there is more to life than the mountaineering or human relations skills which have been so emphasized in the past, and are seeking to move on to new levels of awareness. This has led to several religiously based programs being founded, while others make use of yoga, meditation, fasting, and other "transpersonal" techniques to help learners. Perhaps Thoreau's oft quoted passage from Walden, summarizes this longing best.

> I want to live deep and suck out all the marrow of life, to live so sturdily and spartanlike as to put to rout all that was not life, to cut a broad swath and shave close, to drive life into a corner, and reduce it to its lowest terms, and if it proved to be mean, why then to get the whole and genuine meanness of it, and publish its meanness to the world; and if it were sublime, to know it by experience, and be able to give a true account of it in my next excursion. (Thoreau, 91)

The wilderness, the workshop, and the experiences of everyday life have been found to be powerful environments for learning, but the transpersonal psychologists suggest, not without evidence, that once the skills and abilities have been learned to master those environments, spiritual voids still exist for many persons, and these can only be filled by going deeper into the human being and outward into the cosmos for answers.

K. Insights from Developmental Change Theory: Erikson

In this section we shall concentrate on the insights of a variety of developmentalists, who deal with developmental stages in both children and adults on a wide variety of dimensions, including; moral and ethical development, intellectual development, interpersonal and cognitive styles, and ego or character types.

The adult stages have been documented in the popular book, Passages, by Gail Sheehy, based on the research of Levinson and Gould. The transitional periods in the late teens and late twenties, as well as the "mid-life crisis" of the late thirties and early forties have captured the attention of many experiential educators as times particularly appropriate for challenging experiences, to help the adult come to grips with a new stage or period in their lives. This has been shown in a variety of studies on Outward Bound and similar adventure-based programs, where it has been found that many adults participated in such activities to come to grips with a particularly vexing problem or concern in their professional and/or personal lives. The challenge activities were seen as a motivator to help deal with the issues, and as evidence that change is possible, "even in an adult."

Arthur Chickering in his article in the book, Experiential Learning has done an excellent job of summarizing in chart form, what a variety of developmental psychologists have written about child and adult stages in ego development, moral and ethical development, interpersonal style and intellectual development.

These charts are found in Appendices 1 through 7, with Appendix 7 summarizing most of the data to be found on the first six. In stage theory, development is seen as a series of hierarchical stages, each of which builds on and includes the earlier stages. Movement is not automatic through normal growth processes, but rather is moved along through person-environment interactions, or in other words, through the experiences of the individual. Some of the most widely read stage development work is that of Lawrence Kohlberg, whose basic ideas are reflected in several of the appendices. Experiential educators have in recent years been attracted to Kohlbergs' ideas in structuring settings in which children and adults are confronted with experiences, which help to move the learner up Kohlberg's scale from obedience to external controls towards internal, principled autonomy. Kohlberg has attempted to connect his theory with that of Piaget's, so that moral and ethical development and intellectual development can grow at the same time.

Competence in interpersonal relationships and interpersonal style is another major category that stage theorists have written about and researched. The appropriateness of childhood or adolescent behavior for a mature adult is one way of conceiving the problem of interpersonal competence. Experiential educators have long held that when children and young people are placed in settings outside the schools where they must interact with adults other than their teachers, appropriate interpersonal styles and competent adult behavior are much more likely to result than if they continue in the isolation of their peer groups.

Much more could be said about the applicability of experiential learning in these critical areas, and the reader is encouraged to carefully study the appendices for ways in which such learning promotes moral, intellectual and interpersonal development.

Erik H. Erikson

One of the most important developmental psychologists speaking to the needs of adolescents and adult learners is Erik Erikson. Erikson bemoans the "imbalance between passive stimulation and active outlet" in the pleasures that are sanctioned for young people today. He sees the youth of today substituting passivity for adventure and activity and this leading to the nearly inevitable explosion in delinquent behavior. Erikson is perhaps best known for his eight developmental stages, though he cautions that the healthy personality must reconquer each of the negative traits, so that with each crisis, under favorable conditions, the positive traits outbalance the negative, and each reintegration builds strength for the next crisis. The Eight Stages in the Life Cycle of Man, are:

I. Infancy: Trust vs. Mistrust
II. Early Childhood: Autonomy vs. Shame and Doubt
III. Play Age: Initiative vs. Guild
IV. School Age: Industry vs. Inferiority
V. Adolescence: Identity vs. Identity Diffusion
VI. Young Adulthood: Intimacy vs. Isolation
VII. Adulthood: Generativity vs. Self-Absorption
VIII. Senescence: Integrity vs. Disgust (Erikson)

Experiential education speaks to many aspects of each of the eight stages in the life cycle, recognizing as does Erikson, that there must be a constant reintegration of each of the positive traits throughout our lives. Trust in oneself, one's peers and one's environment have become a cornerstone of most experiential education programs, with adventure programs even naming some of their initiative games, "trust walks" and "trust falls." Autonomy, initiative, and industry are also critical components of most experiential learning programs, while experiential educators accuse the traditional school settings of promoting Erikson's negative traits of Shame and Doubt, Guilt, and Inferiority, through severe competition and guaranteed failure.

The later stages of Erikson's life cycle also are seen as critical parts of most experiential learning programs. Numerous research studies on the effects adventure programs for youth, speak to their role in helping the adolescent develop a positive identity, and in recent years countless experiential programs have been developed for delinquent youth suffering from what Erikson calls "Identity diffusion," or a negative identity based on what society or parents, do not waht him to be. Erikson's final stages of Intimacy, Generativity, and Integrity are often found as basic goals of experiential programs and the literature is filled with personal testimonials, if not statistical evidence, that learning in the experiential mode promotes these qualities.

V. ANTHROPOLOGICAL FOUNDATIONS OF EXPERIENTIAL LEARNING: Gibbons

In recent years, adventure-based experiential educators, along with Maurice Gibbons and his Phi Delta Kappa Task Force, have looked to anthropology for insights into experiential learning and the role it should or could play in the educational process.

One of the most used concepts is that of "ritual," or what the anthropologists define as a continuum of events which together create a process experience for the individual. The three stages of this process are: Separation; Transition; and Incorporation. Anne Ketchin, Anthropology doctoral student and adventure-based educator defines these three processes as follows:

> Separation: Abrupt separation from everyday life and familiar places and things...and relationships. The group, or person, often enters an entirely new social and physical environment.
> Transition: The transition through these new experiences usually takes on a dream-like quality, referred to as 'liminal'. Although "reality" is back in everyday life, the present situation becomes "more real than real." If there is a group the members become close, and mutually reinforcing.
> Incorporation: Incorporation back into everyday life is a very important stage, receiving a lot of attention in most societies..
>
> (Ketchin, 1-2)

Other criteria for ritual mentioned by Ketchin are status and role reversals; status leveling, the abruptness and rapidity of separation, the use of drama, the use of metaphor, the presence of stresses (social and/or physical), isolation, symbolic challenges, and a kind of knowledge to be gained. Ketchin's dissertation is an attempt to apply these concepts of ritual to women in Outward Bound, perhaps the best known of the adventure-based experiential education programs. It is not hard to see how Outward Bound and similar programs have become modern-day rituals.

The isolated group in a wilderness area develop a new sense of identity, with strong in-group feelings of support for the members of the group. Highly successful persons in the "real" world, suddenly find that they are no longer necessarily the best or even capable of coping in the new environment. New criteria of success are placed on the participants, and most programs place them in a series of stressful situations. The mountains, rivers, oceans, rocks, marathons, etc., all become a metaphor for life in the outside world, and new symbols replace those which were left behind.

Even non-adventure based experiential programs contain certain aspects of ritual. The student going out on a work-study assignment is separated from most of his or her peers, who remain in the "womb" of the school, is rewarded for his or her ability to "do" the real life tasks, rather than perform on pencil and paper tests, is placed under new varieties of stress, and gains a new or different kind of knowledge than is usually to be found in the classroom.

Maurice Gibbons

Maurice Gibbons is not an anthropologist, but his article titled, "Walkabout: Searching for the Right Passage from Childhood and School" in the May, 1974, Phi Delta Kappan borrowed extensively from anthropological concepts, and has had an increasingly important effect on the nature of secondary education in this country. Gibbons theme was taken from the Australian film by the same name in which an aborigine child spends six months on his rite of passage in the deserts of Australia. Children from the city are also in the desert at the same time, but are lost, helpless and exhausted. Gibbons draws the parallels between the city children's inability to cope, with the similar inabilities of many American youth to function in adult society upon completion of secondary school. The skills on the one hand are those of survival, life and death, while on the other they are pencil and paper tests far removed from survival in the "real world." Isolation and the need to trust one's inner and spiritual resources is contrasted with the crowd experience of secondary education in this country.

Gibbons went on to propose in the article that American young people could benefit from a Walkabout characterized by real, not vicarious or simulated experiences, and that students would be asked to meet five basic challenges: Adventure, Creativity, Service, Practical Skill, and Logical Inquiry. The article and subsequent Walkabout association have led to experimental programs in many secondary schools throughout the U.S., implementing various aspects of Gibbons' ideas.

VI. TOWARDS A DEFINITION OF EXPERIENTIAL LEARNING

In this final section on the theory of experiential learning, we shall draw materials and ideas from a wide range of sources in an attempt to define more closely what we mean by experiential learning. Chickering defines it as:

> learning which occurs when changes in judgments, feelings, knowledge or skills result for a particular person from living through an event or events...Experiential learning may also result from an encounter group or an exam, discussion or demonstration, work or play, travel or sitting on a stump. (Chickering, 63)

The appeal of Chickering's definition is its emphasis upon change, and the breadth of the definition which recognizes that experiential learning can occur in the classroom as well as in the wilderness.

From the outdoor, adventure-based group of experiential educators come other definitions. The necessary characteristics of the Outward Bound process have been defined by Vic Walsh, Director of Northwest Outward Bound and by Gerald Golins, Director of Colorado Outward Bound: The experiences must be:

1. Organized...problems are intended to be planned, programmed, and managed.. problem solving tasks...not all experience is necessarily educative...
2. Incremental...problems are introduced incrementally in terms of their complexity and consequence...
3. Concrete...problems are concrete, i.e., recognizable as problems limited in time and space...
4. Manageable...problems can be solved with the use of common sense and the application of basic skills which have been taught (incrementally).
5. Consequential...tasks have real consequences not vicarious ramifications.
6. Holistic...problems are holistic, that is, their solution requires the fullest complement of an individual's mental, emotional, and physical resources. (Walsh and Golins, 7-9)

Walsh and Golins also describe the learner, the physical environment, and the social environment, which go to make up the "Outward Bound Process." In a final chart they lay out the various steps in the process, and summarize it into the following statement: "The learner is placed into a unique physical environment and into a unique social environment, then is given a characteristic set of problem-solving tasks, which lead to a state of adaptive dissonance, to which he adapts by mastery, which reorganizes the meaning and direction of the learner's experience." (Walsh and Golins, 16) A similar definition has been drawn up by Bob MacArthur for use with his Leadership Program at Dartmouth College. "The learner is placed into a demanding situation which necessitates mastery of new skills, which are followed immediately by responsible, challenging action, demanding application of new skills, coupled with an opportunity for critical analysis and reflection, which ultimately reorganizes the meaning and direction of the learner's life experience." (MacArthur, 11)

James Kielsmeier of the American Youth Foundation lists the following aspects of experiential learning as critical to any definition: An emphasis on process rather than program; how to learn rather than content acquisition; internal learner motivation as opposed to imposed learning; value forming experience-not sterile learning; intergroup, cooperative learning versus isolated, competitive approaches, and the use of discovery, inquiry, problem solving, hands-on, high intensity, and active reflection in all experiential learning situations. (Kielsmeier)

The National Commission on Resources for Youth lists the important ingredients for learning by service programs as: filling genuine needs of adolescents and of society; providing a real challenge to students; an opportunity for guided selection on the service experience; providing participants with a sense of community; contributing to the knowledge that adolescents need regarding career options open to them; the program must be both structured and flexible; and allowing young people to exercise adult responsibility and permitting them to actively participate in decision-making and governance of the project. (National Commission on Resources for Youth)

Project Exploration's suggested elements of an experiential learning model are quite inclusive and include the following elements; a sense of adventure, unpredictability, drama and suspense; a sense of organizational understanding and commitment; a high level of expectation; a success orientation in which growth is supported and encouraged and in which the positive is emphasized; an atmosphere of mutual support; a sense of enjoyment; group problem solving; the integration of group and individual challenges; environments beyond the regular school classroom; a merging of intellectual, social, physical and emotional learning and development; a significant amount of cognitive work related to the experience; a combination of active involvement with moments of personal and group reflection and evaluation; and finally, continued emphasis on the basic skills of reading, writing, mathematics and verbal communication. (Project Exploration)

It is Maurice Gibbons and the Phi Delta Kappa Task Force in The New Secondary Education that have done the most extensive and detailed analysis of the theory and practice of experiential learning. They list a variety of elements which go to make up a quality secondary education, most of which closely parallel those aspects of experiential learning dealt with throughout this paper. The following is an abbreviated list of significant experiential program elements.

> Education is a lifelong, continuous process providing the experiences environments, relationships, challenges, and guidance individuals need to maximize their opportunities for growth in each period of personal transformation, to prepare for the changes demanded by each period of transition, and to cultivate the ability to negotiate the demands of changing circumstances in the society in which they live. (Gibbons, 91-92)

Appendix 8 details the Task Force's Periods of Transformation and Transition. The influence of Levinson's and Gould's research, referred to earlier is evident in this part of the program definition, as is the emphasis on change, which was such an important part of Dewey's philosophy.

> The purpose of education is to assist individuals to create a learning lifestyle with a developmental perspective, based upon the discovery and continuing refinement of each person's unique capacity for personal growth, relationships with others, and functional competence. (Gibbons, 95)

The emphasis in this program element reflects many of the ideas from the humanistic psychologists and from such learning theorists as Bruner. Developmental perspectives are also pointed to as critical, with insights from Piaget and Erikson being likely sources for such insight.

> ...programs should cultivate such transformations as independence and responsibility in behavior and the formulation of a sense of identity based on competence...apply their knowledge and talent in useful work and jobs, to act cooperatively with many, and to form loving, mutual, and lasting relationships with a few...programs also should prepare students to negotiate unprogrammed events in actual circumstances so that they will be able to cope with reality... (Gibbons, 96-97)

Numerous theorists have spoken of the need for experiential programs to better teach independence and responsibility. The ability to cope with unplanned events is a critical component of not only outdoor, adventure-based experiential programs, but also many work-oriented activities. The application of knowledge, not the useless verbalism which Friere condemns, is also a critical part of any experiential learning environment.

> ...learning situations should give full attention to personal and interpersonal as well as academic content. The treatment of content in each domain should be as concerned with intense firsthand experiences and challenging productive activities as with relevant theoretical studies. (Gibbons, 100)

In order to prepare students for transformations, transitions and societal change, Gibbons and his colleagues hold that the classroom is too narrow an environment and that the learner must deal more directly with personal and social issues through concrete experiences. The academic domain is important, but so are the personal and social or interpersonal domains. Appendices 9 and 10 detail in chart form Learning by experience, study and productive activity on one dimension, and the personal, social and academic domains on the other.

Learning is a cycle that includes "the sensory input of concrete experience, the process of theoretical studies and the output of productive activities." (Gibbons, 102) Experience is the raw material which stimulates curiosity and interest, but experience and study are not enough, as they must lead to productive activity in the world.

> ...education should be organized to teach students to develop and implement their own personal programs, to develop programs in cooperation with others, and to pursue appropriate programs designed for this. In this process teachers should be organizers of suitable experiences, environments, and personnel as well as programs of study, and they should be competent in methods of guiding individual development, training groups in interpersonal relationships, and teaching the skills of academic mastery. (Gibbons, 104)

This element of an experiential program emphasizes the role of the student in developing programs, not without the help of teachers and other adults, but in keeping with their own need and interests. It also calls on teachers to play the role of trainer, counselor, and guide in the personal, interpersonal and academic domains, and not just the dominant instructor of today.

The practical outworkings of the model call for a Junior Segment (Junior High School), consisting of eight centers in which students would spend up to two months: The Center for the Fine, Applied and Performing Arts; Wilderness School; The Local Bureau of Investigation; Workshop in Practical Activities, The Institute of Advanced Studies, The Humanities Center and Life Skills Laboratory, The Center for the Study of the World, and finally the School of Guided Self-Education. The Senior Segment would consist of eight challenges: physical/psychological challenge, creativity challenge, service challenge, investigation challenge, practical skill challenge, work-experience challenge, academic challenge, and extension program. (Gibbons, 117-122) Appendices 11 and 12 detail how the learning grid might look for one of the junior and one of the senior segments.

We shall not burden the reader here with a final, all-inclusive definition of experiential learning, but suggest that the elements for such a definition can be found in the theoretical discussions which preceded this section, and in the practical program elements reviewed in this definition section on definition. The programs observed and evaluated by this writer, and the massive study by Diane Hedin dealt with in the next section, both lead to the inescapable conclusion made by the Brazilian educational philosopher, Paulo Freire, that action without reflection is mere activism and creates unauthentic forms of existence, while reflection without action becomes mere verbalism, idle chatter, or an alienated and alienating blah. (Freire, 75-76) It is a challenge to traditional education to escape the meaningless verbalism into which it has fallen, and for experiential educators to beware of the trap of meaningless activism, or mis-educative experience as Dewey has called it.

VII. RESEARCH AND EVALUATION IN EXPERIENTIAL LEARNING

Since the dominant focus of this paper is the theory of experiential education, this section on research and evaluation may appear to be rather cursory, but our purpose here is not to give a complete review of all research on experiential learning, or to design all the possible evaluative strategies. Rather, following a brief summary of some of the critical research in the field, some strategies for conducting evaluations in experiential learning environments will be outlined. The research in vocational education and internship/apprenticeship settings will not be dealt with in this review, as this has been done elsewhere, but rather the concentration here will be on the outdoor-adventure, volunteer service, and related experiential programs, to which most of the theory section of the paper was dedicated.

Diane Hedin, perhaps the leading experiential education researcher, conclude in a recent articles that

> "There is relatively little 'hard' evidence about the impact of such programs on student participants. Little effort has been made to test systematically the assumptions underlying the recommendations or to investigate empirically which specific forms of experiential programs may be most effective in realizing the hypothesized benefits." (Hedin,3)

This author's search of the literature confirms Hedin's judgment, that there is little 'hard' evidence. The literature is filled with testimonials, journals, case studies and other data indicating the positive effects of experiential learning on child, adolescent and adult participants, but very few experimental or even quasi-experimental research has been conducted. There are a variety of reasons for this lack of data, not the least of which was referred to earlier, namely, that experiential educators have allied themselves much more closely with humanistic psychologists that they have with the behaviorists. This has led to a great many more 'soft' research designs involving participants filling out surveys or keeping journals, and has been confirmed primarily to "self-concept" research, rather than data concerning cognitive or intellectual development. This does not mean, however, that the research is insignificant or irrelevant, only that it is limited in its scope and applicability.

One of the major difficulties of experiential education research is the problem of finding appropriate assessment tools. Since many experiential programs do not have explicitly stated academic, cognitive or intellectual goals, the use of traditional test scores is limited. This does not mean, however, that such programs have not or should not be evaluated on their effects in these critical areas. In addition to a lack of appropriate instruments, there is some question as to the validity of many pencil and paper tests when applied to experiential settings, where the objectives often deal with things more difficult to measure than the usual cognitive objectives of the classroom. Because outcomes are elusive in most experiential settings, Hedin used a variety of techniques to obtain data, including: paper and pencil tests, systematic observations of parents, teachers, and community supervisors; student journals and writing samples; case studies of individual students and programs, and several unobtrusive measures. This use of a wide variety of approaches and types of instruments and measures appears to be the most satisfactory approach, in order to avoid the criticisms leveled most of the research in the area, where the reliability and validity of the instruments and procedures is constantly called into question.

Arnold Shore, in 1977, compiled over 80 studies which had been conducted over the years on the effects of Outward Bound. He concluded the research literature on Outward Bound is weak, due to the lack of rigor imposed on many of the studies, and methodological weaknesses in research design. (Shore, 1977) His own summarization, however, can be criticized for not stating explicitly his own criteria for judging the research. The Reference Volume by Shore, however, is an excellent starting place for persons wishing to gain an overview of the research literature on outdoor adventure programs. Robert Godfrey reviewed a long list of studies on outdoor-adventure programming and found evidence of positive growth on a wide variety of factors: positive self image, social functioning, stability of personality, control of personal facts, changes in values and personality, tolerance of others and self-confidence. Specific studies also indicated growth in positive attitudes towards parents and peers, improved race relations, an improved sense of the value of education, increased desire to go to college, and a lessening of positive attitudes towards regular school and classroom settings. (Godfrey) For the benefit of those wishing more details on specific studies, the bibliography of Godfrey's review can be found in Appendix 13.

Hedin's evaluation has been referred to earlier in this section and is probably the most thorough and extensive evaluation of experiential programs to date. Thirty programs in independent, public and parochial schools and over 4,000 students were part of the analysis. There was near unanimity in the initial studies on the basic features about what is learned in experiential settings, and these twenty-four items with their percentage responses are included here, as they clearly indicate what participants in such programs believe to be the fundamental characteristics of the experiential learning environment.

WHAT STUDENTS LEARN IN EXPERIENTIAL LEARNING
COMPOSITE PROFILE OF 20 EXPERIENTIAL PROGRAMS (N=4,000)

ITEM (in rank order)	PERCENTAGE OF RESPONSES		
	Agree*	Disagree*	Don't Know
1. Concern for fellow human beings	93%	4%	3%
2 Ability to get things done and to work smoothly with others	93	4	3
3 Realistic attitudes toward other people such as the elderly, handicapped, or government officials	88	4	8
4. Self-motivation to learn, participate, achieve	88	7	5
5 Self-concept (sense of confidence, sense of competence, self-awareness)	88	7	5
6 Responsibility to the group or class	86	3	11
7 Risk-taking — openness to new experiences	86	7	8
8 Sense of usefulness in relation to the community	86	8	6
9 Problem solving	86	9	5
10 Risk-taking — being assertive and independent	86	9	5
11. Accept consequences of my own actions	85	9	6
12 Gathering and analyzing information, observation, reflecting on experience	84	8	7
13 Knowledge of community organizations	82	7	11
14 Responsibility for my own life	80	10	9
15 Awareness of community problems	78	13	9
16 Assume new, important tasks in community and school	78	14	8
17 Communication skills (listening, speaking, presenting ideas through variety of media)	77	11	7
18 Awareness of community resources	71	13	16
19 Realistic ideas about the world of work	71	18	11
20 Learning about a variety of careers	70	22	8
21 Use of leisure time	60	26	14
22 Narrowing career choices	54	34	12
23 To become an effective parent	52	29	19
24 To become an effectivesconsumer	46	32	22

*Strongly agree and agree are combined and disagree and strongly disagree are combined

(Hedin and Conrad)

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In addition to finding out what students say they learn in experiential settings, the authors also used instruments to assess social, psychological and intellectual growth. It is the comprehensive nature of this research effort which makes it stand out from the vast majority of other attempts at finding out what happens to participants in experiential settings. Among the scales used or developed for the study were: Personal and Social Responsibility Scale, Semantic Differential on Adults, Career Exploration, Community Problem Inventory, Rosenberg Self-Esteem Scale, the Janis-Field Feeling of Social Inadequacy Scale and a Problem Solving Inventory.

Among the many findings on this massive study are: students entered into more relationships with adults and experience more positive attitudes towards them; students developed more responsible attitudes and behaviors; community participation is more highly valued by experiential learners; active involvement in careers leads to more positive attitudes towards careers; self-concept and self-esteem in relation to others was positively affected in the large majority of programs; seventh-eight percent of the students said they had learned more and only 9% less in the experiential programs; in general there was a significant movement upward in empathy and complexity by students; no single practice or set of practices guarantees effectiveness for all students; the strongest factor influencing constructive change was the existence of a seminar in which students could reflect on their experiences; and the most effective programs lasted at least one semester or 18 weeks. The following chart indicates the characteristics of experiential learning considered most important.

RELATIVE INFLUENCE OF CHARACTERISTICS OF EXPERIENCE ON PSYCHOLOGICAL AND SOCIAL DEVELOPMENT: COMPARATIVE RANKINGS FOR STUDENTS IN EXPERIENTIAL PROGRAMS VERSUS STUDENTS IN CETA PROGRAMS

RANKINGS IN EXPERIENTIAL PROGRAMS	RANK	RANKINGS IN CETA PROGRAMS
Had Adult Responsibilities	(1)	Was Given Clear Directions
Made Important Decisions	(2)	Did Things Myself
Did Things Myself	(3)	Made Important Decisions
Free to Develop and Use Own Ideas	(4)	Got Help When I Needed It
Felt I Made a Contribution	(5)	Had Variety of Tasks
Free to Explore Own Interests	(6)	Was Appreciated for Good Work
Discussed My Experiences with Teacher	(7)	Had Challenging Tasks
Discussed with Family/Friends	(8)	Felt I Made a Contribution
Given Clear Directions	(9)	Used My Own Ideas
Adults Took Interest In Me	(10)	Developed a Personal Relationship

The authors conclude that the key factors promoting growth are: (1) that the experiences be significant and provide for the exercise of autonomy, and (2) that there be opportunity for active reflection on the experience. (Hedin, 9) This coincides well with the definitions and program elements discussed in the previous section.

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Persons looking for a model evaluation of experiential education programs would do well to read Shore, Godfrey and Hedin carefully, before embarking on such a task, as a great deal of ground has already been covered, and there is no need to "reinvent the wheel" with each new evaluation.

Ernest House of the University of Illinois suggests eight major models for evaluating programs of any kind. Systems Analysis, used extensively by U.S. Government agencies, assumes a few quantitative output measures, usually test scores, and attempts to relate differences in programs to variations in test scores. Correlational analysis of survey data and outcome measures are related to the programs. Hedin's study, along with many of the self-concept studies reviewed by Shore and Godfrey use this basic approach to evaluating experiential programs. A second major model is that of Behavioral Objectives, in which program objectives are carefully spelled out in terms of specific student performances that can be reduced to specific student behaviors. Several studies of Outward Bound have made use of at least some aspects of this model, particularly in light of that organization's emphasis upon carefully defined, measurable objectives in recent years. Goal Free evaluations have been used in some experiential learning programs. In this model the evaluator is not told of the program developer's objectives, in order to prevent bias, but rather has to search for all the outcomes.

Art Criticism is a model from art and literature in which the trained and experienced critic makes judgments about various facets of a program. Numerous experiential programs have been subjected to this type of evaluation; all too often by hostile critics or true believers who have tended to either denigrate or praise everything that they see. In the Accreditation model, schools cooperatively unite to evaluate each other, using teams of outside professionals who evaluate previously collected materials and apply sets of external standards. It is only in recent years that many experiential programs have agreed upon standards of safety, program, teacher qualifications and other such things, so that this model of evaluation is comparatively recent in the field.

The Adversary model uses quasi-legal procedures in which persons present the pros and cons of a program, with the procedures taking the form of a trial by jury. Although the model has surely been used elsewhere, the only example in experiential education of which this writer is aware has been in safety inquiries following death or injury on outdoor-adventure programs. The final one is called a transaction model by House and uses a variety of informal methods such as the case study to evaluate the processes used in any given program. Ethnographic studies and naturalistic observation are other forms in this growing field of educational evaluation. Hedin and her colleagues used aspects of this model in their extensive observations of classrooms, interviews with parents, teachers and students, and analyses of student journals and other projects. More than one study of Outward Bound has used a participant observer to detail what occurs on a given course. Ketchin's dissertation referred to earlier used the broad range of anthropological techniques to make judgments about the effects of an Outward Bound course on women. (House, 4-5)

There are no doubt other models which could be used in an evaluation of an experiential program, but House's article outlines the major ones used to this point. A valuable how-to-do-it guide has been put out by Action's National Student Volunteer Program, called Evaluating Service-Learning Programs: A Guide for Program Coordinators. Appendix 14 includes an Evaluation Plan: Worksheet which should be helpful in getting started on any experiential program evaluation. Finally, in order to provide the would-be evaluator with some ideas of the extensive nature of criterion measure which can be used, Appendix 15 gives Metfessel's and Michael's "Multiple Criterion Measures for Evaluation of School Programs." (Worthen, 274-279)

VIII. SOME POSSIBLE IMPLICATIONS FOR THE EDUCATION OF THE DEAF

> I would not deny that the "experiential deficiency" of deaf youngsters is related indirectly to their inability to hear and use language. But I blame the environment and the schools for not being sufficiently inventive to work around the language problem and to create an intellectually challenging atmosphere... (Furth, 1973, 60)

Furth's comment above captures the essence of how this writer believes that experiential learning relates to the education of the deaf. Exceptional learning and behavior characteristics of children, youth and adults are at least partially due to past learning experiences. Behavior problems, poor academic achievement, poor self concepts, excessive stress or anxiety, inadequate social skills can all be traced to the learning environments in which deaf, or other, children have been placed. This implies that if other learning environments or approaches were used, that many of the problems mentioned above might at least be alleviated.

Even a cursory look at the literature shows that deaf children suffer environmental and experiential deprivation of several sorts, and that unless special approaches are used to correct these deprivations, they will be unable to make the kind of educational, personal and social progress of which they are capable. How all of this relates to experiential education will be the topic for these concluding thoughts.

Furth suggests that for Piaget, "language is not the preferred, much less the necessary, medium of thinking." (Furth, 1973, 60) From his own and reviews of others' research, Furth suggests for example, that the slowness of deaf children to comprehend the concept of the Conservation of Weight is due to "early experiential deficiency, a blending of social, emotional, and intellective neglect." (Furth, 1966, 120) Conceptual development can also be slowed by lack of formal training and Furth posits this as a cause for slowness in addition to less general experience of the physical world than hearing peers.

The slowness of deaf children in giving mature responses to Piaget's tasks is not due to an inability to reason, but a lack of motivation to do so. "Deaf people behave as they do, not as a direct or necessary consequence of linguistic deficiency, but as a result of their social environment...the social environment does or does not motivate the inquiring mind." (Furth, 1966, 151) Experiential deficiency is related to the child's incompetence in language, but such a relationship is not inevitable. The appropriate environmental and experiential components must be found to promote intellectual curiosity, spontaneous initiation and the other attributes sought for both hearing and deaf children. Experiential components can serve as a motivational tool to improve learning, while special training is also called for.

Furth concludes a 1964 study by stating that persons deficient in linguistic experience or skill:

> a) are not permanently or generally retarded in intellectual ability,
> b) may be temporarily retarded during their developmental phase because of lack of sufficient general experience and
> c) they may be retarded on certain specific tasks in which available word symbols or linguistic habits facilitate solution. (Slobin, 116)

A major way in which deaf persons differ from the hearing population is in variables related to personality, motivation, and values. These are primarily due to experiential and social factors in the home, school and deaf community, and can be dealt with if "nonverbal methods of instruction and communication were encouraged both at home and...and in the formal school education. (Furth, 1966, 227)

Play and gestures are more important than verbal language, as the active use of the body is the basic mode of symbol formation from which all other symbol modes derive. Motor or kinesthetic images are as indispensable as the better-known visual and auditory images. (Furth, 1973, 29) "The acquisition of symbols is never a passive or mechanistic paired-associates learning as one often hears; rather, it is an active assimilation... symbols derive from real events that the person turns into symbols. (Furth, 1973, 31)

Researchers from a variety of disciplines have shown that developmental lag is not caused only, or even primarily by the lack of language. This research has been done on "culturally deprived" children in rural or ghetto settings in several societies, who suffer, as do deaf children from social and physical environments and lack of experiences conducive to intellectual growth, development, and stimulation.

Deaf educators have bemoaned the lack of concrete, experience-based learning activities in the early grades of traditional deaf schools. With junior high or middle school,practical activities are added to the curriculum, but these are often used as a dumping ground, and not fully utilized to enhance intellectual growth or motivate the deaf child.

Experiential education as it has been discussed in this paper would appear to hold real promise for providing the acquisition of symbols in an active, concrete way. The exact nature of what these activities or experiences might be is not the purview of this paper, but research would appear to indicate that educators of the deaf must begin to utilize new methodologies, if slowness and retardation of intellectual development are to be countered.

It is in the areas of personality and social development that the role of experiential education becomes even clearer. Contact with the hearing world in experiential settings would appear to alleviate many of the problems the deaf children face when in public. Deaf children who exhibit impulsive behavior can benefit from active forms of learning which teach other, more appropriate behaviors through motoric or kinesthetic means. Deaf persons do not appear to suffer any higher rates of schizophrenia or marital discord, and in fact appear to live equally as healthy and adjusted lives as adults as the general population. Furth posits this to the deaf child's ability to construct self-originated symbols, and acceptance of deafness quite early in life, and an early commitment to the deaf community.

The source of many of the problems faced in the social environment appear to be external to the deaf child. Teacher bias against deaf children has been documented, as has parental overprotection, with many mothers of deaf children "more controlling, more intrusive, more didactic, more rigid, and more critical," than mothers of hearing children. (Furth, 1973, 82)

The theory, research, and evaluation of experiential education with which this paper has dealt, gives some possible direction for working with deaf children, although there is little or no research to back up such claims. Experiential learning has proven to be a powerful boon to the self-concepts of its participants. Whether in an adventure based setting or a work internship, learners have been shown to make significant gains on numerous self-concept scales. This finding would appear to dovetail well with some of Furth's research indicating the need for such improved self-concepts on the part of deaf youth, particularly in motivating them to intellectual or cognitive growth.

Empathic behavior, self-motivation, and risk-taking are other documented behaviors from experiential programs that would appear to have applicability for the education of the deaf. Furth and other researchers have bemoaned the lack of problem-solving skills of deaf persons, and this appears to be a successful focus of many experiential programs. Hearing children and young people have learned a great deal about themselves, careers, special populations, and community problems through their involvement in these programs, and there is little reason to believe that deaf persons could not benefit in the same ways.

The values of experiential learning shown in the Hedin, Shore and Godfrey research all would appear applicable to working with the deaf, and given the "experiential deprivation" of deaf populations it would appear to be time for a significant move in the direction of hands-on, experiential approaches to learning both in and outside the classroom. Experiential deprivation can only be dealt with through experience, and if deaf children are not to remain "experientially poor" in an information rich society, significant changes must be brought about in their schooling.

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APPENDIX 1

Author	*Amoral*	*Fearful-dependent*	*Opportunistic*	*Conforming to persons*	*Conforming to rule*	*Principle autonom*
	Ego or Character Types					
Peck and Havighurst (1960)	1. Amoral		2. Expedient	3. Conforming	4. Irrational-conscientious	5. Rational-altruistic
Sullivan, Grant, and Grant (1957)	I_1 Presocial	I_2 Passive-demanding	I_3 Conformist (exploitative)	I_3 Conformist (cooperative)	I_4 Authoritarian Guilty	I_6 Self-cons I_7 Integrati
Harvey, Hunt, and Schroeder (1961)	Sub-1	1. Absolutistic-evaluative	2. Self-differentiating	3. Empathic		4. Integrate independ
Loevinger (1970)	1. Presocial Symbiotic	2. Impulse-ridden, fearful	3. Self-protective	4. Conformist	5. Conscientious	6. Autonom 7. Integrate
Vanden Daele (1968)	1. Excitation-oriented	3. Conflict-avoidant	5. Peer and reciprocity oriented	6. Social conformist	7. Duty and responsibility	8. Independ agent orientati 9. Self-soci integrati

Source: Adapted from Kohlberg (1973), p. 46.

(Chickering, 67)

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APPENDIX 2

STAGES OF DEVELOPMENT

Stage	*Impulse Control, Character Development*	*Interpersonal style*	*Conscious Preoccupations*	*Cognitive Style*
Presocial		Autistic	Self versus non-self	
Symbiotic		Symbiotic		
Impulsive	Impulsive, fear of retaliation	Receiving, dependent, exploitive	Bodily feelings, especially sexual and aggressive	Stereotypy, conceptual confusion
Self-protective	Fear of being caught, externalizing blame, opportunistic	Wary, manipulative, exploitive	Self-protection wishes, things, advantage, control	
Conformist	Conformity to external rules, shame, guilt for breaking rules	Belonging, helping, superficial niceness	Appearance, social acceptability, banal feelings, behavior	Conceptual simplicity; stereotypes and cliches
Conscientious	Self-evaluated standards, self-criticism, guilt for consequences	Intensive, responsible, mutual concern for communications	Differentiated feelings, motives for behavior, self respect, achievements, traits, expression	Conceptual complexity, idea of patterning
Autonomous	Add: Coping with conflicting inner needs, toleration	Add: Respect for autonomy	Vividly conveyed feelings, integration of physiological and psychological causation of behavior, development, role conception, self-fulfillment, self in social context	Increased conceptual complexity, complex patterns; toleration for ambiguity, broad scope, objectivity
Integrated	Add: Reconciling inner conflicts, renunciation of unattainable	Add: Cherishing of individuality	Add: Identity	

Note: "Add" means in addition to the description applying to the previous level.
Source: Loevinger and others (1970).

(Chickering, 68)

APPENDIX 3

Phases of Ego Development Associated with Moral and Ethical Development

	Ego Development Stages					
Loevinger	Presocial Symbiotic	Impulse-ridden, fearful	Self-protective	Conformist	Conscientious	Autonomous Integrated
	Moral and Ethical Development					
Kohlberg	Egocentric	Obedience-punishment oriented	Instrumental egoism and exchange	Good-boy, approval oriented	Authority, rule, and social order oriented	Social contracts, legalistic oriented Moral principle orientation
Perry	Basic duality	Multiplicity prelegitimate	Multiplicity subordinate, multiplicity correlate, or relativism subordinate	Relativism correlate, competing or diffuse	Commitment foreseen	Initial commitment, implications of commitments, developing commitments

Source: Adapted from Kohlberg (1973), p. 46.

(Chickering, 72)

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APPENDIX 4

STAGES OF EGO, MORAL AND ETHICAL, AND INTELLECTUAL DEVELOPMENT

Ego Development	*Moral and Ethical Development*			*Intellectual Development*	
	(Kohlberg)	(Perry)	(Loevinger)	(Piaget)	(Bloom)
Amoral	Egocentric	Basic duality	Stereotypy, conceptual confusion	Symbolic, intuitive thought	
Fearful-dependent	Obedience-punishment oriented	Multiplicity prelegitimate		Concrete operations: 1. Categorical classification	Memorization
Opportunistic	Instrumental egoism and exchange	Multiplicity subordinate		Concrete operations: 2. Reversible concrete thought	Application
Conforming to persons	Good-boy, approval oriented	Multiplicity correlate or relativism subordinate	Conceptual simplicity; stereotypes and cliches		
Conforming to rule	Authority, rule, and social order oriented	Relativism correlate, competing or diffuse	Conceptual complexity, idea of patterning	Formal operations: 1. Relations involving the inverse of the reciprocal	Analysis
				Formal operations: 2. Relations involving triads	
Principled autonomous	Social contracts, legalistic oriented	Commitment foreseen	Increased conceptual complexity, complex patterns; toleration for ambiguity, broad scope, objectivity	Formal operations: 3. Construction of all possible relations	Synthesis
	Moral principle orientation	Initial commitment, implications of commitments, developing commitments		Systematic isolation of variables	
				Deductive hypothesis testing	Evaluation

(Chickering, 73)

APPENDIX 5

MODELS OF PROFESSIONAL PRACTICE AND INTERPERSONAL RELATIONSHIPS

Governing variables	*Action strategies*	*Consequences for the behavioral world*	*Consequences for learning*	*Effectiveness*
MODEL ONE				
1. Define goals and try to achieve them	1. *Design and manage the environment unilaterally* (be persuasive, appeal to larger goals)	1. Actor seen as defensive, inconsistent, incongruent, competitive, controlling, fearful of being vulnerable, manipulative, withholding of feelings, overly concerned about self and others or underconcerned about others	1. Self-sealing	Decreased effectiveness
2. Maximize winning and minimize losing	2. *Own and control the task* (claim ownership of the task, be guardian of definition and execution of task)	2. Defensive interpersonal and group relationship (dependence upon actor, little additivity, little helping others)	2. Single-loop learning	
3. Minimize generating or expressing negative feelings	3. *Unilaterally protect yourself* (speak with inferred categories accompanied by little or no directly observable behavior, be blind to impact on others and to the incongruity between rhetoric and behavior, reduce incongruity by defensive actions such as blaming, stereotyping, suppressing feelings, intellectualizing)	3. Defensive norms (mistrust, lack of risk-taking conformity, external commitment, emphasis on diplomacy, power-centered competition, and rivalry)	3. Little testing of theories publicly. Much testing of theories privately	
4. Be rational	4. *Unilaterally protect others from being hurt* (withhold information, create rules to censor information and behavior, hold private meetings)	4. Low freedom of choice, internal commitment, and risk-taking		

MODELS OF PROFESSIONAL PRACTICE AND INTERPERSONAL RELATIONSHIPS (*Cont.*)

Governing variables	*Action strategies*	*Consequences for the behavioral world*	*Consequences for learning*	*Consequences for quality of life*	*Effectivene*
MODEL TWO					
1. Valid information	1. *Design situations or environments where participants can be origins and can experience high personal causation* (psychological success, confirmation, essentiality)	1. *Actor experienced as minimally defensive* (facilitator, collaborator, choice creator)	1. Disconfirmable processes	1. *Quality of life will be more positive than negative* (high authenticity and high freedom of choice)	
2. Free and informed choice	2. *Tasks are controlled jointly*	2. *Minimally defensive interpersonal relations and group dynamics*	2. Double-loop learning	2. *Effectiveness of problem solving and decision making will be great, especially for difficult problems*	Increase long-ru effectiveness
3. Internal commitment to the choice and constant monitoring of its implementation	3. *Protection of self is a joint enterprise and oriented toward growth* (speak in directly observable categories, seek to reduce blindness about own inconsistency and incongruity)	3. *Learning-oriented norms* (trust, individuality, open confrontation on difficult issues)	3. Public testing of theories		
	4. *Bilateral protection of others*				

Source: Adapted from Argyris and Schon (1974), pp. 68, 69, 87.

APPENDIX 6

INDIVIDUAL DIFFERENCES AND EDUCATIONAL PRACTICE

Ego Development	*Moral Development*	*Intellectual Development*	*Motive for Education*	*What is Knowledge?*	*What Use is Knowledge?*
Self-protective Opportunistic	Obedience-punishment oriented	Knowledge (simple recall)	Instrumental; satisfy immediate needs	A *possession* which helps one get desired ends; ritualistic actions which yield solutions	Education to get: means to concrete en used by self to obtain effects in world
Conformist	Instrumental egoism and exchange; good-boy, approval oriented	Comprehension Application	Impress significant others; gain social acceptance; obtain credentials and recognition	*General information* required for social roles; objective truth given by authority	Education to be: soci approval, appearance status used by self to achieve according to expectations and standards of significant others
Conscientious	Authority, rule and social-order oriented	Analysis Synthesis	Achieve competence re competitive or normative standards. Increase capacity to meet social responsibilities	*Know how:* Personal skills in problem solving; divergent views resolved by rational processes	Education to do: competence in work a social role; used to achieve internalized standards of excellenc and to serve society
Autonomous	Social contracts, legalistic orientation Moral principle orientation	Evaluation	Deepen understanding of self, world, and life cycle; develop increasing capacity to manage own destiny	Personally generated *insight* about self and nature of life; subjective and dialectical; paradox appreciated	Education to become: self-knowledge: self-development; used to transform self and the world

Where does Knowledge Come From?	*Learning Processes*	*Institutional Function*	*Teaching Practice*	*Student-Teacher Relationships*	*Evaluation*
From external authority: from asking how to get things	*Imitation;* acquire information, competence, as given by authority	Arouse attention and maintain interest: to show how things should be done	Lecture-exam	Teacher is authority, transmitter, judge: student is receiver, judged	By teacher only
From external authority: from asking what others expect and how to do it		Provide predetermined information and training programs; certify skills and knowledge	Teacher led; dialogue or discussion		By teacher only
			Open "leaderless" "learner centered" discussion		
				Teacher is a "model" for student identification	By teacher and peers
Personal integration of information based on rational inquiry; from setting goals; from asking what is needed, how things work, and why	*Discover* correct answers through scientific method and logical analyses; multiple views are recognized but congruence and simplicity are sought	Provide structured programs which offer concrete skills and information, opportunities for rational analysis, and practice, which can be evaluated and certified	Programed learning; correspondence study; televised instruction	"Teacher" is an abstraction behind system. Student a recipient	By system
Personal experience and reflection; personally generated paradigms, insights, judgments	*Seek new experiences;* reorganize past conception on the basic of new experiences; develop new paradigms; create new dialectics	Ask key questions; pose key dilemmas; confront significant discontinuities and paradoxes; foster personal experience and personally generated insights	Contract learning: 1. Time, objectives, activities, evaluation negotiated between student and teacher at the outset and held throughout	Student defines purposes in collegial relationship with teacher; teacher is resource, contributes to planning and evaluation	By teacher, peers, system self; teacher final judge
			Contract learning: 2. Time, objectives, activities, evaluation defined generally by student, modifiable with experience		By teacher, peers, system, self; self final judge

Note: Just as each developmental stage incorporates and transforms earlier stages, so also each subsequent learning process and institutional function incorporates and transforms earlier levels.

Source: Personal communication; adapted from materials developed by Harold Lasker, Harvard Graduate School of Education.

(Chickering, 90-91)

APPENDIX 7

RELATIONSHIPS AMONG AREAS AND STAGES OF HUMAN DEVELOPMENT

Ego Development	*Moral and Ethical Development*			*Intellectual Development*		*Developing Purposes*	*Expansion of Caring*	*Interpersonal Style*	
	(Kohlberg)	*(Perry)*	*(Loevinger)*	*(Piaget)*	*(Bloom)*			*(Loevinger)*	*(Argyris and S*
Amoral	**Egocentric**	**Basic duality**	**Stereotypy, conceptual confusion**	**Symbolic, intuitive thought**		**Play**		**Autistic Symbiotic**	**Model O**
Fearful-dependent	**Obedience-punishment oriented**	**Multiplicity prelegitimate**	**Conceptual simplicity**	**Concrete operations: 1. Categorical classification**	**Memorization**	**Sex/social**	**Close friendships**	**Receiving, dependent, exploitive**	**Defensive, inc competitive, co ling, fearful of vulnerable, with feelings, overly cerned about others, or unde cerned about o**
Opportunistic	**Instrumental egoism and exchange**	**Multiplicity subordinate**	**Stereotypes and cliches**	**Concrete operations: 2. Reversible concrete thought**	**Application**			**Wary, manipulative exploitive**	
Conforming to persons	**Good boy, good girl, approval oriented**	**Multiplicity correlate, or relativism subordinate**						**Belonging, helping, superficial niceness**	**Defensive inte and group rela ships** **Defensive n** **Low freedom internal comm and risk taking**
Conforming to rule	**Authority, rule, and social order oriented**	**Relativism correlate, competing or diffuse**	**Conceptual complexity, idea of patterning**	**Formal Operations: 1. Relations involving the inverse of the reciprocal**	**Analysis**	**Marriage, family**	**Wife, children**	**Intensive responsible, mutual concern for communications**	**Model Two** **Minimally de**
				Formal operations: 2. Relations involving triads		**Vocational, professional**	**Institution, organization, association**		**Minimally de interpersonal and group d** **Learning norms.**
Principled autonomous	**Social contracts, legalistic oriented**	**Commitment foreseen**	**Increased conceptual complexity, complex patterns**	**Formal operations: 3. Construction of all possible relations**	**Synthesis**	**Life style**	**Commitments in intimacy**	**Respect for autonomy**	
	Moral principle orientation	**Initial commitment; implications of commitments; developing commitments**		**Systematic isolation of variables**		**Social service**	**Devotion to human welfare and dignity; social responsibility**	**Cherishing of individuality**	
			Toleration for ambiguity; broad scope; objectivity	**Deductive hypothesis testing**	**Evaluation**				

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(Chickering, 96-97)

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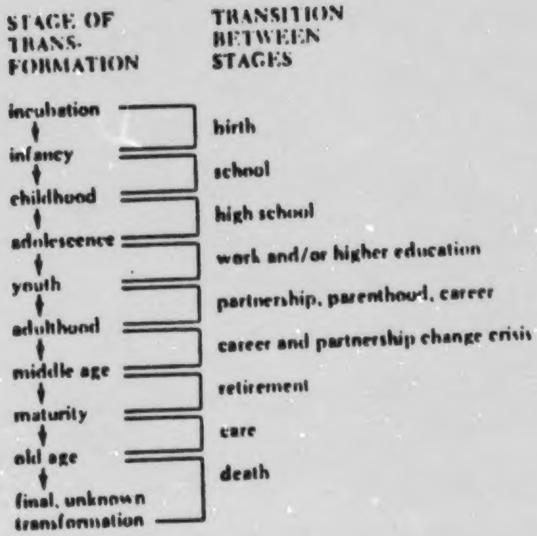
APPENDIX 8


STAGE OF TRANS-FORMATION
TRANSITION BETWEEN STAGES
incubation
birth
infancy
school
childhood
high school
adolescence
work and/or higher education
youth
partnership, parenthood, career
adulthood
career and partnership change crisis
middle age
retirement
maturity
care
old age
death
final, unknown transformation

. Periods of Transformation and the Transition Between Them.

(Gibbons, 93)

APPENDIX 9

	Personal Domain	Social or Interpersonal Domain	Academic or Impersonal Domain
Learning by Experience:	Experience of one's self and one's personal experience of the world. Sensing: Responding	Experience of being in the group and experiences created and shared by the group. Interacting: Sharing	Experience of others' ideas, works, and ways of doing things: experience of the culture Exploring: Manipulating
Learning by Study:	Study of one's self and one's own studies of the world. Concentrating: Organizing	Study of the group and studies of the world conducted by the group. Analyzing: Debating	Study of accepted content and methods. Studies of the world by experts Comprehending: Practicing
Learning by Productive Activity:	Creating one's own ideas and objects. Imagining: Inventing	Negotiating a group goal and achieving it. Deciding: Cooperating	Generating one's own arguments and procedures. Formulating: Performing

. The Kinds of Learning in the Situation.

(Gibbons, 102)

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APPENDIX 10

	Personal-Individual	Interpersonal-Social	Impersonal-Academic
Experience	solitude, encountering things, encountering self, awareness, imagining, becoming absorbed, trying new activities, exposure to new environments and conditions, experiencing new states of being.	encountering others, encountering self through others, experiencing relationships, roles, responsibilities, experiencing other families, races, cultures, sharing, caring for and being cared for, contributing.	manipulating object of study, attending and participating in performances (plays, concerts, vacations, customs), trying out and exploring, direct observation, simulations, reconstruction of other's experiences and procedures, experimentation, trying jobs and professions.
Study	increased attention, concentration, introspection, reflection, exploration, inner dialogue, decision making, planning, value clarification, inner imagery, identification of personal resources, management of growth, organizing studies on one's own, active learning, field studies	learning to communicate, monitor group process, give and receive feedback, organizing to set and achieve goals, relating with warmth, genuineness, and empathy, training in relationship skills, implementing group study programs and activities	imitating, absorbing ideas and practices from others (books, lectures, conversations, learning packages, other media), practicing for mastery, organized inquiry and formal experimentation, researching, developing frameworks and models, synthesizing
Productive Activity	creating ideas and objects of all kinds, inventing, interpreting, hypothesizing, construction, building of all kinds, organizing something for a purpose, teaching others.	generating ideas, cooperating to serve selves and others, and to entertain selves and others, cooperating in community action programs, solving problems, challenging capacity of group, conducting cooperative exploration and research	thinking to conclusions, evaluating hypotheses, formulating opinions and arguments, applying one's ideas and judgments, solving problems, developing new approaches, concepts, theories, practices, techniques, processes, and materials, performing in jobs, professions, career activities

Events in the Learning Situation.

(Gibbons, 105)

APPENDIX 11

	Personal	Interpersonal	Academic
Experience	*Share the experience of someone active in reporting, police work, or small business operation *Experience a number of shops, newspapers and precincts as a client and participant *Experience and record your personal attitudes and responses to the work involved	*Find out how the adult you are working with feels about his job, what it means, what he experiences *Interview people, try selling someone something *Share your experiences and responses with others	*Work study, take over or help with some part of the job *Experience micro-teaching, writing from the wire services, investigating simulated crimes
Study	*Outline the skills of investigation involved in one of these jobs *Plan a personal program of study, practice, and activity to master the skills of investigation Design a competency ladder for developing an important skill involved in the job	* Apprentice to the reporter or teacher learning from them what they do, how, and why *Establish a base group with others to discuss problems encountered *Plan an investigation or study of the job with others *Practice interviewing, selling, teaching others	*Study technical sources about the work suggested by the teacher or other adult *Attend the police academy, a night school course in small business management *Set up classes at the Bureau
Productive Activity	*Research and write newspaper articles until one is accepted locally for publication *Prepare and teach a lesson or unit *Study catalogues, sales, and the market and prepare an order for the business *Teach others what you have learned	*Launch a newsletter about the activities of others at the Bureau *Plan and institute a short lived small business at the Bureau with others *Set up a tutoring bureau for younger students	*Conduct investigations of problems your tutor model is solving *Consider other approaches which might be employed and suggest them

Some Possible Elements in a Learning Grid
for the Local Bureau of Investigation
(Examples are Police Work, Small Business Management,
Reporting, and Teaching)

(Gibbons, 11[illegible])

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APPENDIX 12

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	Individual-Personal	Interpersonal-Social	Impersonal-Academic
Experience	*Learn to experience sculpture in an intense personal way *Learn to reflect on one's own central images *Collect sketches, photographs, and samples of compelling objects and shapes *Develop a personal aesthetics.	*Learn from sculptors and other artists how they feel and think about their work *Share ideas and experiences in art with peers and others *Discuss your own work with artists *Collect wood from mills, lumberyards and orchard owners	*Find and experience the best sculpture available *Visit and observe carvers at work *Visit foresters and wood research laboratories *Find a work study job with wood
Study	*Design a competency ladder in carving *Learn to visualize vividly *Carve the same subject many times for skill, precision, and speed *Plan a personal program of study about the lives, technique, and art of great sculptors *Plan a program for learning to sketch ideas	*Apprentice to a master carver *Plan a program with others to study an art form or historical period of art *Seek assistance with a carving problem *Discuss your plans, progress, and problems with a "family" group *Consult cabinet makers and other specialists	*Study traditional carving and techniques in books, courses, perhaps in a traditional European school of carving *Conduct research in selecting, preparing, and drying flitches for carving *Imitate good carvings *Practice particular skills, such as sharpening tools, under guidance
Productive Activity	*Keep a journal of information and a sketchbook of ideas *Carve and carve and carve *Create a personal technique and style *Prepare a show of carvings	*Teach someone to carve. *Plan a show of various art forms with other artists *Open a small co-operative shop to sell works of various young artists. *Seek a commission	*Experiment with new techniques, new equipment, new styles *Develop new finishes *Make a file of data on carving woods *Set up your own studio

Some Possible Elements of a Learning Grid for a Creativity Challenge in Wood Sculpture.

(Gibbons, 173)

Appendix 13

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APPENDIX 14

EVALUATION PLAN

WORKSHEET

1. Project program to be evaluated: ______________________________

2. Reason for evaluation (see Section 1 — identify purpose, user, and use to which information will be put):

____

____

____

____

3. Research questions (see Section 2— put the information your evaluation will be seeking in question form):

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____

4. Program goals/objectives against which accomplishments will be measured (see Sections 1 and 2 —make sure goals/objectives are clear, specific and measurable):

____

____

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____

5. Attainment measures (see Section 2 --- identify exact items you will use to look at program progress, outcome, and effect):

____

____

____

____

WORKSHEET (Cont'd)

6. Research design (see Sections 2 and 3 -- identify how you will judge your achievements, e.g., whether you will be measuring actual accomplishments against planned accomplishments, making a before and after comparison of the same group, contrasting accomplishments of those involved in your program with a sample group which was not involved or making comparisons against an external base):

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7. Data collection methods (see Sections 2 and 4 — identify ways you will obtain data - record review, telephone or mail survey, personal interviews, standardized tests, observation, etc.):

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8. Data analysis (see Section 5 — identify analysis processes to be used and questions each process will answer):

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9. Use of results (see Section 6 — identify how implication of results will be identified and taken into account in program operation):

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10. Identify all key tasks and clearances required, responsibility and time frame:

	Task	Time	Responsibility
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

APPENDIX 15

Multiple Criterion Measures for Evaluation of School Programs

I. Indicators of Status or Change in Cognitive and Affective Behaviors of Students in Terms of Standardized Measures and Scales

Standardized achievement and ability tests, the scores on which allow inferences to be made regarding the extent to which cognitive objectives concerned with knowledge, comprehension, understanding, skills, and applications have been attained.

Standardized self inventories designed to yield measures of adjustment, appreciations, attitudes, interests, and temperament from which inferences can be formulated concerning the possession of psychological traits (such as defensiveness, rigidity, aggressiveness, cooperativeness, hostility, and anxiety).

Standardized rating scales and check lists for judging the quality of products in visual arts, crafts, shop activities, penmanship, creative writing, exhibits for competitive events, cooking, typing, letter writing, fashion design, and other activities.

Standardized tests of psychomotor skills and physical fitness.

II. Indicators of Status or Change in Cognitive and Affective Behaviors of Students by Informal or Semiformal Teacher-made Instruments or Devices

Incomplete sentence technique: categorization of types of responses, enumeration of their frequencies, or rating of their psychological appropriateness relative to specific criteria.

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Interviews: frequencies and measurable levels of responses to formal and informal questions raised in a face-to-face interrogation.

Peer nominations: frequencies of selection or of assignment to leadership roles for which the sociogram technique may be particularly suitable.

Questionnaires: frequencies of responses to items in an objective format and numbers of responses to categorized dimensions developed from the content analysis of responses to open-ended questions.

Self-concept perceptions: measures of current status and indices of congruences between real self and ideal self—often determined from use of the semantic differential or Q-sort techniques.

Self-evaluation measures: student's own reports on his perceived or desired level of achievement, on his perceptions of his personal and social adjustment, and on his future academic and vocational plans.

Teacher-devised projective devices such as casting characters in the class play, role playing, and picture interpretation based on an informal scoring model that usually embodies the determination of frequencies of the occurrence of specific behaviors, or ratings of their intensity or quality.

Teacher-made achievement tests (objective and essay), the scores on which allow inferences regarding the extent to which specific instructional objectives have been attained.

Teacher-made rating scales and check lists for observation of classroom behaviors: performance levels of speech, music and art; manifestation of creative endeavors, personal and social adjustment, physical well being.

Teacher-modified forms (preferably with consultant aid) of the semantic differential scale.

III. Indicators of Status or Change in Student Behavior Other than Those Measured by Tests, Inventories, and Observation Scales in Relation to the Task of Evaluating Objectives of School Programs.

Absences: full-day, half-day, part-day and other selective indices pertaining to frequency and duration of lack of attendance.

Anecdotal records: critical incidents noted including frequencies of behaviors judged to be highly undesirable or highly deserving of commendation.

Appointments: frequencies with which they are kept or broken.

Grade point average: including numbers of recommended units of course work in academic as well as in non-college preparatory programs.

Grouping: frequency and/or duration of moves from one instructional group to another within a given class grade.

Homework assignments: punctuality of completions, quantifiable judgments of quality such as class marks.

Leisure activities: numbers and types of; times spent in; awards and prizes received in participation.

Library card: possessed or not possessed; renewed or not renewed.

Load: numbers of units or courses carried by students.

Peer group participation: frequency and duration of activity in what are judged to be socially acceptable and socially undesirable behaviors.

Performance: awards, citations received; extra credit assignments and associated points earned; numbers of books or other learning materials taken out of the library; products exhibited at competitive events.

Recommendations: numbers of and judged levels of favorableness.

Recidivism by students: incidents (presence or absence or frequency of occurrence) of a given student's returning to a probationary status, to a detention facility, or to observable behavior patterns judged to be socially undesirable (intoxicated state, dope addiction, hostile acts including arrests, sexual deviation).

Referrals: by teacher to counselor, psychologist, or administrator for disciplinary action, for special aid in overcoming learning difficulties, for behavior disorders, for health defects or for part-time employment activities.

Referrals: by student himself (presence, absence, or frequency).

Service points: numbers earned.

Skills: demonstration of new or increased competencies such as those found in physical education, crafts, homemaking, and the arts that are not measured in a highly valid fashion by available tests and scales.

Social mobility: numbers of times student has moved from one neighborhood to another and/or frequency with which parents have changed jobs.

Tape recordings: critical incidents contained and other analyzable events amenable to classification and enumeration.

Tardiness: frequency of.

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Articles and stories: numbers and types published in school newspapers, magazines, journals or proceedings of student organizations.

Assignments: numbers and types completed with some sort of quality rating or mark attached.

Attendance: frequency and duration when attendance is required or considered optional (as in club meetings, special events, or off-campus activities).

Autobiographical data: behaviors reported that could be classified and subsequently assigned judgmental values concerning their appropriateness relative to specific objectives concerned with human development.

Awards, citations, honors, and related indicators of distinctive or creative performance: frequency of occurrence or judgments of merit in terms of scaled values.

Books: numbers checked out of library, numbers renewed, numbers reported read when reading is required or when voluntary.

Case histories: critical incidents and other passages reflecting quantifiable categories of behavior.

Changes in program or in teacher as requested by student: frequency of occurrence.

Choices expressed or carried out: vocational, avocational, and educational (especially in relation to their judged appropriateness to known physical, intellectual, emotional, social, aesthetic, interest, and other factors).

Citations: commendatory in both formal and informal media of communication such as in the newspaper, television, school assembly, classroom bulletin board, or elsewhere (see Awards).

"Contacts": frequency or duration of direct or indirect communications between persons observed and one or more significant others with specific reference to increase or decrease in frequency or to duration relative to selected time intervals.

Disciplinary actions taken: frequency and type.

Dropouts: numbers of students leaving school before completion of program of studies.

Elected positions: numbers and types held in class, student body, or out-of-school social groups.

Extracurricular activities: frequency or duration of participation in observable behaviors amenable to classification such as taking part in athletic events, charity drives, cultural activities, and numerous service-related avocational endeavors.

Grade placement: the success or lack of success in being promoted or retained; number of times accelerated or skipped.

Transiency: incidents of.

Transfers: numbers of students entering school from another school (horizontal move).

Withdrawal: numbers of students withdrawing from school or from a special program (see Dropouts).

IV. Indicators of Status or Change in Cognitive and Affective Behaviors of Teachers and Other School Personnel in Relation to the Evaluation of School Programs

Articles: frequency and types of articles and written documents prepared by teachers for publication or distribution.

Attendance: frequency of, at professional meetings or at inservice training programs, institutes, summer schools, colleges and universities (for advanced training) from which inferences can be drawn regarding the professional person's desire to improve his competence.

Elective offices: numbers and types of appointments held in professional and social organizations.

Grade point average: earned in postgraduate courses.

Load carried by teacher: teacher-pupil or counselor-pupil ratio.

Mail: frequency of positive and negative statements in written correspondence about teachers, counselors, administrators, and other personnel.

Memberships including elective positions held in professional and community organizations: frequency and duration of association.

Model congruence index: determination of how well the actions of professional personnel in a program approximate certain operationally-stated judgmental criteria concerning the qualities of a meritorious program.

Moonlighting: frequency of outside jobs and time spent in these activities by teachers or other school personnel.

Nominations by papers, students, administrators' or parents for outstanding service and/or professional competencies: frequency of.

Rating scales and check lists (e.g., graphic rating scales or the semantic differential) of operationally-stated dimensions of teachers' behaviors in the classroom or of administrators' behaviors in the school setting from which observers may formulate inferences regarding changes of behavior that reflect what are judged to be desirable gains in professional competence, skills, attitudes, adjustment, interests, and work efficiency; the perceptions of various members of the total school

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community (parents, teachers, administrators, counselors, students, and classified employees) of the behaviors of other members may also be obtained and compared.

Records and reporting procedures practiced by administrators, counselors and teachers: judgments of adequacy by outside consultants.

Termination: frequency of voluntary or involuntary resignation or dismissals of school personnel.

Transfers: frequency of requests of teachers to move from one school to another.

V. Indicators of Community Behaviors in Relation to the Evaluation of School Programs

Alumni participation: numbers of visitations, extent of involvement in PTA activities, amount of support of a tangible (financial) or a service nature to a continuing school program or activity.

Attendance at special school events, at meetings of the board of education, or at other group activities by parents: frequency of.

Conferences of parent-teacher, parent-counselor, parent-administrator sought by parents: frequency of request.

Conferences of the same type sought and initiated by school personnel: frequency of requests and record of appointments kept by parents.

Interview responses amenable to classification and quantification.

Letters (mail): frequency of requests for information, materials, and servicing.

Letters: frequency of praiseworthy or critical comments about school programs and services and about personnel participating in them.

Participant analysis of alumni: determination of locale of graduates, occupation, affiliation with particular institutions, or outside agencies.

Parental response to letters and report cards upon written or oral request by school personnel: frequency of compliance by parents.

Telephone calls from parents, alumni, and from personnel in communications media (e.g., newspaper reporters): frequency, duration, and quantifiable judgments about statements monitored from telephone conversations.

Transportation requests: frequency of.

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Experiential Learning as a Teaching Strategy for the Career Education of Hearing-Impaired College Students

Urban Whitaker

SECTION I

EXPERIENTIAL LEARNING: CONCEPTS, THEORIES AND MODELS

What is Experiential Learning?

It may be impossible to develop a generally accepted definition of experiential learning. But it is important to try. In any case, it is necessary for all the parties in any discussion of experiential learning to know what each other's definitions are. Otherwise some vital areas, both of agreement and of disagreement, will be distorted by the differential use of terms.

For the purposes of this paper "experiential learning" refers to learning that has three primary characteristics:

first, it is primarily SELF-DIRECTED;
second, it is primarily INDUCTIVE; and
third, it takes place primarily OUTSIDE THE CLASSROOM.

You may already have serious questions about the repeated use of the flexible word "primarily". Justifiably so. The definition of the subject is at once so important and so difficult that it seems necessary to hedge it with qualifiers and to explain them at some length. It may help if we look at each of the three elements of the definition above: the locus of control (self-directed or other directed); the sequence of learning events (inductive or deductive); and the site of the learning (in or out of the classroom). It will be necessary to answer also a fourth question about the time when the learning took place since experiential learning is equated by some with prior learning (i.e., learning that took place before the learner sought formal recognition for it).

Locus of Control: Who was (or is) in Charge of the Learning Process?

It is tempting to conclude simply that experiential learning is self-directed learning. This conclusion does find its way into some definitions, but it is usually qualified in some important way. Perhaps the closest to a purist approach is in CAEL's Annotated Literature Guide which concedes that "all learning is experiential", but concludes that, for its purposes, experiential learning refers "especially to learning that occurs outside the classroom in work settings, communities, or self-directed accomplishments" (Stutz and Knapp, 1977, p. 1).

However, it is clear as the "or" in the sentence suggests, that non-classroom learning is not necessarily self-directed. Probably the majority of internships and similar campus-sponsored field studies are "guided experiential learning" (Whitesage and Glassy, 1979, p. 2). Still a strong argument can be made that "sponsorship" and "guidance" do not amount to "direction" of the learning process by the campus sponsor. CAEL's Handbook on College-Sponsored Experiential Learning describes experiential education as a "learning activity, sponsored by an educator, in which the learner has the primary responsibility for the educational endeavor and for a specific task or work assignment related to his or her placement, which is the major vehicle for the student's learning" (Duley and Gordon, 1977, p. V).

In summary, about the locus of control in experiential learning, it seems best to stay with the qualified statement that "experiential learning is primarily self-directed".

Nature of the Learning Process: Is Experiential Learning Inductive or Deductive?

For some educators this is a single key to the definition of experiential learning. They conclude that it is inductive, while traditional or classroom learning is deductive. David Kolb and James Coleman (both of whose conclusions are discussed in detail below) are among the leading scholars who emphasize the inductive nature of experiential learning. Kolb (1976) argues that experiential learning starts with "concrete experience" and is followed by "reflective observation" and then "abstract conceptualization" (p. 3). Coleman (1976), in distinguishing the "traditional" or "information assimilation" learning mode from the "experiential" mode, concludes that the most important difference is the point at which generalizations are made. He defines experiential learning as an inductive process in which generalizations follow "action and observation of concrete events" (p. 56). Hadley Nesbit (1977), in CAEL Student Guide, boils it all down to a simple definition: experiential education is "learning by doing" (p. 2).

What this kind of evidence it is tempting to conclude that all experiential learning is inductive. But, again, it seems better to continue with the qualified conclusion that experiential learning is primarily inductive. The reason for this conclusion is that "all learning involves experience" (Stutz and Knapp, 1976, p. 1).

Classrooms are experiential settings. Listening to lectures and reading books are experiences. And, if the lecture or the reading assignment contains a generalization such as a theory or a principle, then the distinction between deductive and inductive learning disappears as an element in the definition of experiential learning. A possible exception to this conclusion arises when the use of the term "experiential" is confined to non-symbolic (i.e., involving language) learning.

The particular importance of this distinction for learning by hearing-impaired persons is obvious and will be discussed at length in Section III of this paper. We will return to this point in the summary at the end of this section, after we discuss the roles of the site of learning and of the time of learning.

The Site of Experiential Learning: Does it Always Take Place Outside the Classroom?

"Off-campus learning" and "experiential learning" are sometimes used as interchangeable terms. Duley and Gordon (1977), who call experiential education "an off-campus learning activity" add a footnote to their definition explaining that "off-campus is not a fully accurate term because some students work in college offices" (p. v). They go on to justify it, however, as a way of distinguishing between traditional and "non-traditional studies that occur in non-classroom settings". While this is a very useful distinction, it leaves two loopholes: Laboratories (classrooms of a sort); and simulations, in classrooms, of outside conditions. Are labs and simulations "experiential" learning situations? If all learning is experiential, they certainly are. If experiential learning is primarily self-directed and primarily inductive, they may or may not be. Laboratories, at least for undergraduates, are rarely self-directed learning experiences in the sense of the learner's having the choice of experimenting or not experimenting, or even of experimenting on "x" instead of "y". Nor is the learning from the lab always purely inductive, since the general principle may be introduced in lectures or in assigned reading and then "tested" or "demonstrated" (rather than "discovered") in the lab. Much the same can be said of simulation.

In summary, about the site of experiential learning, again, it seems best to stick to the conclusion that experiential learning takes place primarily outside the classroom (and laboratory).

The Time of Learning: Is Experiential Learning Only That Which Takes Place Before the Learner has Matriculated?

We've already seen above, in the numerous references to "sponsored" experiential learning, that CAEL defines experiential learning without reference to the time, or formal student status, of the learning. Nevertheless, there is a persistent strain of thought, both in and outside the academic profession, that the term experiential learning refers only or primarily to learning that takes place before the learner seeks academic recognition for it. It should not be surprising, given the elements of definition discussed above of experiential learning as primarily self-directed, inductive, off-campus learning. Once "sponsorship" (likely to mean a measure of otherdirectedness) is introduced, the learning is likely to become less purely inductive even if it remains entirely off-campus. This is so even if the "sponsor" is an off-campus, non-academic agency such as the armed forces or a private corporation. In fact, these non-collegiate sponsores of instruction, just like the colleges and universities, utilize the traditional classroom mode as well as the experiential learning mode that is so hard to define. Thus, while a U.S.A.F.I. course or an I.B.M. course, for example, might qualify as prior learning in the sense that it occurred before the student enrolled in a college, it might not qualify by any of our criteria as experiential.

In summary, both prior and sponsored learning may be either traditional or experiential. The time at which the learning took place has no necessary relationship to any of the three criteria discussed above: locus of control, inductive or deductive process, or the site of the learning. Whatever we may conclude that experiential learning is, prior experiential learning is simply that portion of it, sponsored or not, that took place before the learner presented the learning to the institution that is considering it for academic recognition.

The terms "prior" and "sponsored" experiential learning have just been described as essentially irrelevant when our assigned task is to define experiential learning. An additional comment is appropriate at this point, however, to reaffirm the importance of both of these is a discussion of experiential learning. The two types of experiential learning are both defined in terms of time. The word "prior" is a reasonably good one to describe its side of the story. Prior learning is learning that takes place before the institution that is asked to recognize it was involved. It is, however, important to specify that we are talking about prior experiential learning in order to distinguish it from transfer credit earned, at a prior time, at another institution.

The word "sponsored" is not quite as effective because it really means two things: sponsored, in the sense of planned or supervised by the institution rather than entirely self-directed; and sponsored by this institution and thus, in terms of time, postdating enrollment by the learner as a student.

This distinction between prior and sponsored experiential learning is a vital one for both educational and political reasons. Educationally, a strong case can be made that sponsored (i.e., planned) experiential learning is more effective than learning that just happens. Additionally, it is a great deal easier to assess levels of achievement and to evaluate learning for possible award of credit when the assessor is able to observe the learning in progress.

Politically, academic institutions are very cautious about recognizing learning that took place under somebody else's (or nobody's) auspices. This reluctance is aggravated, particularly in a time of declining enrollments, by economic concerns. The more credit that is given for outside learning, the less tuition is paid for inside learning--or, at least, so goes the argument.*

In summary, "prior" and "sponsored" are two distinct kinds of experiential learning programs. They require different kinds of faculty expertise and different types of administrative processing, and they serve very different purposes, both for the learners and for the academy. The potential advantages of both types of experiential learning programs will be discussed in Section II, below.

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* While this is a very prevalent argument, it should be noted that it may well be a false one. For one thing, fee schedules for the assessment of prior learning can compensate for lost instructional income. In addition, it is often counter-argued that the recognition of prior learning actually increases enrollments by attracting students who would not otherwise consider going to school.

The Symbolic Medium: Does Experiential Learning Rely Exclusively on Non-Symbolic Inputs?

In introducing James Coleman's definition above, a vital point was omitted in order to emphasize, at that stage of our discussion, Coleman's distinction between traditional learning as deductive and experiential learning as inductive. It is necessary to return, however, to another important distinction Coleman makes between traditional (or "information-assimilation") learning and experiential learning.

Putting his point affirmatively, Coleman (1976) says that the traditional, information assimilation mode uses the symbolic medium of language for the information input that is the first step of the learning process. Putting his point negatively, Coleman (1976) defines experiential learning as a process that does not have the advantage of symbolism--i.e., no language inputs. If we were more interested in the clarity than in the utility of our definition of experiential learning, we would seize on this point as the cornerstone of our work. Experiential learning would be defined without any of the "primarily's" as "self-directed, inductive learning by doing or observing without any symbolic (language) input".

The value of such purist definition, however, is severely limited. It is essential for research purposes, and it is applicable for pre-language learning. For our purposes, however, it has limited utility since we are committed to the study of experiential learning at the collegiate level and, therefore, to learning that implies "a conceptual as well as a practical grasp of the knowledge or competence acquired" and learning that is "applicable outside the specific context in which it was acquired" (Willingham, 1977, p. 12). Whether such a level of learning can be acquired without the use of the symbolic language medium is doubtful. But, in any case, it is clear that "experiential learning" as the term is currently used in postsecondary education always assumes, and usually relies heavily upon, the necessary use of symbolic language in the learning process.

Summary and Conclusions on Definition of Experiential Learning

Where does all of this leave us with respect to a working definition of experiential learning? If the pure definition of experiential learning as learning without language symbols is unacceptably narrow, surely the umbrella conclusion that "all learning is experiential" is unacceptably broad. Both definitions are defensible; neither is useful for the present purposes.

We are back where we started from with the conclusion that experiential learning differs from the traditional classroom learning in three ways: experiential learning is primarily self-directed, inductive, off-campus learning. "Primarily" must remain, especially with respect to the first two criteria. An internship or co-op work placement, for example, even when off-campus by several thousand miles might be a heavily supervised, deductive learning environment--but still be considered by the campus to be entirely experiential learning. Conversely, a work experience might be virtually unsupervised at the work site, but may be coupled with an on-campus seminar in which the learner periodically receives an injection of "other" direction that casts a deductive shadow over the learning process. This leads us to a conclusion widely supported by post-secondary educators (and, incidentally, supportive of our emphasis on a qualified definition) that the ideal learning process is an individualized mix of traditional and experiential modes, involving a shared locus of control, a combination of inductive and deductive reasoning, and both on and off-campus learning sites.

After a long research study, one major source calls this combination "experience-based" learning and defines it as involving:

> A continuum of learner involvement levels,
> ranging through:

> didactic/symbolic (lectures, texts, exhibits, demonstrations, etc.)
>
> simulation (labs, mock trials, role-playing, etc.)
>
> community or field-based (work and other off-campus activities)
>
> (Jenks and Murphy, 1980, p. 2)

While Jenks and Murphy thus identify a continuum of learning including all of the traditional trappings of lectures and libraries, they do qualify their definition with the conclusion that learning based solely on the didactic/symbolic end of the continuum is not "experience-based".

In his introduction to CAEL's Principles of Good Practice in Assessing Experiential Learning, Warren Willingham sets a careful stage for the study of experiential learning. It is worth quoting in full as a concluding comment on the definition of experiential learning.

> While CAEL focused upon certain types of learning, frequently in non-classroom settings, it is important to observe first that all learning is in some real sense experiential. Furthermore, CAEL holds that all learning or order to be most effective should have both an experiential and a theoretic component.

Classrooms are experiential settings. A critical aspect of the improvement of classroom instruction is the enrichment of the variety and significance of direct and vicarious experiences of the phenomenon under study. This is recognized by the fact that experiential learning and its assessment often receive emphasis in traditional classrooms through special projects, research, laboratory exercises, and so on. Classroom learning tends, however, to place more emphasis on the theoretic component partly from habit and partly because of the inherent limitations in the types of experience that can be usefully mediated in the school or college setting. A more positive reason for theoretic emphasis in the classroom is the efficiency and power of verbal and mathematical symbols in organizing learning and generalizing its application to other situations.

The label "experiential learning" is not meant to suggest that classroom learning cannot or should not have a substantial experiential component. It is rather that CAEL's emphasis has not been upon classroom

> mediated learning or upon learning where the primary emphasis is upon symbols. CAEL emphasizes assessment of learning in situations in which the priority is rather upon observing, interacting, performing, making things happen, feeling the effects of these activities, noting responses of others, etc. (Willingham, 1977, pp. 12-13)

How Does Experiential Learning Take Place?

Just as we have noted that all learning is in some sense experiential, we can also suggest that all learning is, or can be, in some sense self-directed. The essence of the case for this conclusion is that whenever some "other" directed learning does occur it is at the express invitation of the learner. This may be a little far-fetched if we carry it to the extreme conclusion that four collegiate years of other-directed learning is really self-directed learning because the student enrolled in the institution voluntarily. It is much more meaningful applied to a shorter time scale. During a particular term, for example, a learner may decide to take 10 or 15 weeks of other-directed learning in the form of a series of lectures, reading assignments and other activities determined by a teacher. On an even shorter time scale, the learner may consider one hour of other-directed learning as an important, but temporary, component of a learning plan that includes as well a number of self-directed components. Overall, the total learning experience is self-directed--calling, as necessary and appropriate, on the help of others.

There is a very great advantage to this approach to the learning process. It recognizes that the learner is in charge. And it opens the door to thoroughly individualized learning. Individualized learning is essential. Because each individual has unique learning objectives, learning styles and strengths, and learning backgrounds each individual needs a unique mix of other-directed and self-directed learning, of inductive and deductive learning approaches, and of classroom and field learning.

If we accept this individualized mix of traditional and experiential learning as the ideal, how do we go about achieving it? A prerequisite is a careful examination of the way in which learning (and for our purposes, particularly experiential learning) takes place.

Coleman's model. James Coleman distinguishes between traditional, or information-assimilation, learning and the experiential learning mode. Each process, he says, has four steps:

TRADITIONAL OR INFORMATION-ASSIMILATION	EXPERIENTIAL
1. information (from symbolic medium)	1. action (experienced or observed)
2. understanding of general principles	2. application in particular situations
3. application of principle in a specific situation	3. inference of general principle from specific activity
4. re-application of general principle in new situations	4. re-application of general principle in new situations

The fourth step in the two processes is identical. It is really a learning outcome. Complete learning, according to Coleman, involves sufficient understanding of a general principle that it can be applied in a variety of different contexts. The second and third steps in the two processes are also identical, but are reversed. The general principle comes first in the deductive traditional learning mode, followed by its application to specific situations. The specific application is first in the inductive experiential mode, then a general principle is inferred. The first step for Coleman in the traditional mode is the receiving of information--from a symbolic medium (i.e., language). In experiential learning Coleman (1976) says that information is "generated only through the sequence of steps themselves" (p. 51). The first step is simply experience, narrowly defined to include acting and observing, but to exclude information transmitted symbolically.

Combining the two Coleman models. If we accept the conclusion that the best learning process is an individualized mix of learning modes, then what we need to do is to combine Coleman's two models. It is relatively easy. The combined model should be useful both to self-directed learners, and to the facilitators they may choose when they need the assistance of some other-direction. The combination looks like this:

ELEMENTS OF AN APPROPRIATE "MIX" OF TRADITIONAL AND EXPERIENTIAL LEARNING

Step 1. = Information Acquisition

either:

from symbolic media such as listening to lectures or reading books	or	from experiencing or observing actions

Step 2. = Information Processing

either:

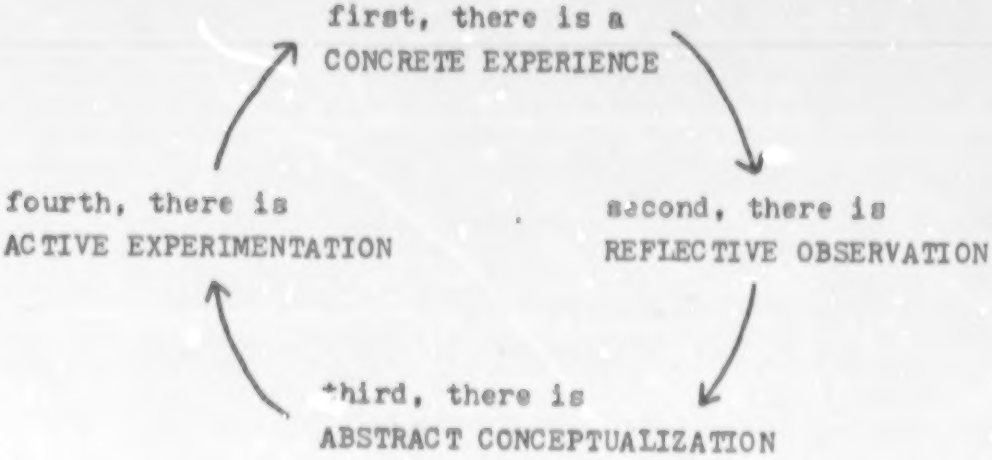
deductive--i.e., getting a general principle from reading or listening and then applying it in a specific situation.	or	inductive--i.e., repeating the experienced or observed action in a particular situation and then conceptualizing it as a general principle.

Step 3. = Transfer Application

Utilizing the understanding of the general principle to apply the learning in new circumstances.

Combining the models does little to Coleman's conclusions other than to encourage the learner to select as appropriate from both of his models. The possible exception is in Step 1. Coleman himself does not consider that the experience or observation in Step 1 of his experiential model constitutes "information acquisition". The combined model comes closer perhaps to David Kolb's description of experiential learning.

Kolb's learning cycle. Like Coleman, David Kolb (1976) distinguishes four steps in the process of experiential learning. Unlike Coleman, he does not distinguish between two learning processes, but assumes that all learning is experiential, and that it proceeds around as a circle as follows:


first, there is a
CONCRETE EXPERIENCE
second, there is
REFLECTIVE OBSERVATION
third, there is
ABSTRACT CONCEPTUALIZATION
fourth, there is
ACTIVE EXPERIMENTATION

Then, the learner is ready for a new cycle of learning, based on the foundation of something already learned. In an important sense, then, it is not a learning cycle, but a learning spiral, each new concrete experience being acquired on a foundation of prior learning.

Kolb's first step is like the mixed Coleman models on the previous page. It is the acquisition of information from experience--and the experience can be either passive (lecture or reading) or active (doing). Kolb's second and third steps together form the second step in the mixed Coleman--and since he puts the abstract conceptualization (theorizing or developing a general principle) after the concrete experience and the reflective observation, it is strongly tilted toward the inductive process. Kolb's fourth step includes Coleman's, but it goes further and considers the "re-application in new circumstances" not only to be the final step in one learning sequence, but also to be the immediate stimulus and foundation for another learning cycle.

How Does Experiential Learning Take Place? -- Summary and Conclusions

At the collegiate level, all learning not only should be, but necessarily is, a mix of traditional and experiential modes. The input of information into the learning process is from both symbolic language and direct action/observation. The development of generalizations from the informational input proceeds both inductively and deductively. The application of general principles to new situations, both for the purpose of accomplishing a specific goal and for the experimental purpose of testing and further developing the principle, is done in and out of classrooms and with varying degrees of advice from other people.

The particular balance of other-direction and self-direction, inductive and deductive, and on-campus and off-campus learning sites is controllable. What is needed is for learning facilitators (faculty members, work supervisors, and other mentors) to help each learner to discover the appropriate mix of learning modes in any particular situation. Some of the considerations that help to determine the appropriate mix are addressed in the following section.

Advantages and Disadvantages of Experiential Learning

As a profession, we are still in the very early stages of studying the nature of experiential learning and discovering ways in which we can prescribe appropriate mixes of experiential and traditional learning for individual students. One of the problems with trying to list advantages and disadvantages of experiential learning is that they vary both with the particular learner and with the particular subject that is being studied.

Learner Readiness

For example, it can be argued that other-directed deductive learning is time efficient. We should avoid re-inventing the wheel. But, it depends on the learner's characteristics. Deductive learning relies heavily on the symbolic medium of language. At the pre-language stage, the efficiency of the deductive process is severely limited by the inefficiency of the language process. Even when the learner's language abilities are high, the success of the deductive approach depends on an attitudinal receptivity that may vary among individuals. A time-saving general principle that is perfectly sound learning advice may be rejected by a non-receptive learner because it comes from a parent or from a teacher. Conversely, it may be followed religiously in another instance because it comes from an admired and respected mentor (including parents and teachers sometimes).

Nature of the Subject

Differences in the subject matter being learned also affect the utility of different learning modes. For example, consider the differences between learning that "fire is hot" and learning that "sexual intercourse may lead to pregnancy". There are at least two crucial differences between these two general principles: immediacy and certainty. Fire will burn the bare skin immediately and every time you put your hand in it. Deductive learning would be better, but at least inductive learning is quick. Pregnancy not only takes longer, but it doesn't happen every time. Deductive learning is not only faster, but as Coleman (1976, p. 56) points out, there is some evidence that "because of the lapse of time", there are people who never make the connection between sexual intercourse and birth at all.

Four Tentative Conclusions

Given these qualifications about differences in learners and in the subjects being learned, we must be tentative about listing advantages and disadvantages of experiential learning. Nevertheless the following conclusions may be useful.

1. Time efficiency. Pure experiential learning suffers from the disadvantage that it often takes a lot longer than guided learning to discover general principles. This is more true for some learners than for others, and for some subjects than for others. In general, however, learning is faster if it is assisted at appropriate points by deductive injections of general principles already proven by somebody else's experiences.

2. Motivation. Experiential learning may increase the learner's motivation because the reward for successful learning by doing is immediate and intrinsic. Traditional classroom learning often suffers from the fact that motivation, such as good grades, is extrinsic and

delayed rather than intrinsic and immediate.

3. Retention. Experiential learning often has the advantage of better retention than purely traditional learning because the learner has directly experienced the results of the learning in action. The "forgetting curve" is dramatic in deductive classroom learning when there is no action environment for immediate and meaningful applications of the lessons learned.

4. Complete learning. Both the experiential and the traditional learning modes have disadvantages with respect to the completeness of the learning process. Learning is not complete until the learner understands the general principles and is able to apply them in a variety of circumstances. Traditional learners often understand the general principles but have difficulty in applying them. Experiential learners often can perform particular actions very well, but don't know the governing principles behind them, and thus can't transfer the learning to other circumstances.

Complete learning, with appropriate balance of theoretical knowledge and practical skill, is best achieved through a combination of traditional and experiential learning techniques.

As we look at some of the applications of experiential learning strategies in the next section of this paper we will also be addressing ways in which the optimum balance of learning modes can be achieved for individual learners. In the present state of the art that is a difficult task. Among the most important agenda for experiential educators in the 1980's is the extension of learning theory. We need to extend and to refine the lists of advantages and disadvantages, and to find more effective ways of matching them to the characteristics of learners and of the subject matter of their studies.

SECTION II

APPLICATIONS OF EXPERIENTIAL LEARNING AS TEACHING/LEARNING STRATEGIES

Experiential learning can be applied to two broad categories of purposes: those having to do with the learning process itself; and those that involve specific content areas. We will discuss the "process" area first because it is prerequisite to the others. If the students don't first learn how to learn from experience their subsequent learning in specific content areas will be random at best. The purpose of exposing students to the process first is to replace "trial and error" experiential learning with systematically planned learning. After we have outlined a strategy for process learning we will apply it specifically to career education with emphasis on the learning of transferable skills and knowledge.

The Process: Learning How to Learn from Experience

"Lifelong experiential learning" is becoming a popular phrase in educational journals and in the brochures of many post-secondary institutions. The term may be new, but the process is not. In fact, it must be accepted as a "given" for this discussion that all of us and all of our students are lifelong experiential learners. The question is not whether our students should become experiential learners. They all are. The questions are whether and how we can help them to become effective experiential learners.

Learning Plans

An effective learning plan has three parts: learning objectives; learning activities selected to achieve these objectives; and provisions for both formative and summative evaluation of progress. Although neither Coleman nor Kolb addresses the question of objectives explicitly, the learning process they describe can be applied effectively to the task of determining learning objectives. There are numerous references to the setting of objectives in the CAEL literature. Both CAEL and a mushrooming series of career-related publications and workbooks have identified a wide selection of exercises and other materials for clarifying values and selecting learning objectives.

Once learners know what it is they want to learn, the Coleman and Kolb models provide excellent outlines of the process that is addressed by the other parts of the learning plan: selection of appropriate learning activities; and conducting an effective evaluation. There are some reasonably straightforward ways in which the overall effectiveness of this process can be maximized. We will look at each of them briefly under the three stages of the merged Coleman and Kolb models.

(Stage One--Information Acquisition)

This subject is what Coleman refers to as "symbols" in his traditional mode and as "action or observing" in his experiential mode. It covers what Kolb calls "concrete action" as the source of information. Whatever we choose to call it, the acquisition of information that is useful for achieving learning objectives can be maximized if the learner internalizes three basic habits:

1. Learners should take charge of their own learning--including, most importantly, the decision whether and when they should temporarily relinquish direction of the learning process to others.

All learning should be self-directed. But an important part of effective self-direction is knowing when to invite information from others. In other words, the first rule is to plan an appropriate combination of experiences, including both the traditional reading and lecture sources, and the activity sources.

2. Learners should habitually utilize both their own and others' experiences.

This may appear to be the same rule as the first just stated above. That rule, however, concerns the direction of the learning process, including the information acquisition part of it. This second rule concerns only that part of the process that is self-directed and is experiential in Coleman's non-symbolic sense. There are two ways of gaining benefit from others' experiences: hearing about them; and observing them at first hand. This rule promotes the latter. The total input of information from non-symbolic, experiential sources is multiplied many fold when the "concrete experience" is broadened to include the experiences not only of self, but also of as many others as possible.

3. Learners should acquire information both from positive and from negative experiences.

There is a common tendency to consider that experiential learning is "trial and error" learning, rather than "cause and effect" learning in which both positive and negative effects are analyzed for patterns that may add up to general principles. At Kolb's second and third steps the "reflective observation" and "abstract conceptualization" have a lot more raw material to work with if all of the experiential results, good and bad, are included as information to be processed.

(Stage Two--Information Processing)

4. Learners should develop the habit of keeping an analytical record (log or journal) on a regular basis.

Effective learning requires more rigorous and systematic analysis than most of us can do without the aid of pencil and paper. Reflective observation and abstract conceptualization will be more effective when the concrete experiences are recorded and organized for repeated reference.

5. Logs and journals should be selective and related to specified learning objectives.

Some valuable lessons are learned without having been consciously sought. But the most effective learning is pursued learning--learning for which there is strong motivation specifically related to carefully planned objectives that are regularly reviewed and prioritized.

6. Logs and journals should be analyses, not simply collections of facts.

Factual information--who, what, when, where--is a necessary and important foundation for analysis. But a useful journal must be primarily pointed toward the "how?" and "so what?" questions. That is the way the bridge is built from concrete experience, via reflective observation, to abstract conceptualization. That is the way we can discover those general principles that are the ultimate target of learning.

(Stage Three--Application and Evaluation)

7. Evaluation should be a part of the learning plan, from the beginning, and should be a continuous process.

It is important to include evaluation as part of the planning process because both the choice of methods and the implementation of the plan must be related effectively to the learning objectives and to the learning activities that are undertaken to achieve them. The evaluation process must be continuous (i.e., formative rather than exclusively summative) as a source of feedback that enables the learner to make any appropriate revisions in the learning process--such as eliminating an activity that is not contributing what was expected of it, or extending a learning activity that is providing unanticipated benefits.

8. Appropriate balance must be sought between self-evaluation and others' evaluations.

Nobody knows the learner as intimately as the learner does, and nobody is as personally affected by the outcome of the learning process. Self-evaluation is therefore an absolutely necessary ingredient in a successful plan. But all of us have blind spots about ourselves, and we do not begin the learning process as experts in what we want to learn or it would not have become a priority learning objective. Thus two kinds of other evaluation are called for: someone who knows the learner intimately and can compensate for the blind spot; and someone who knows the subject intimately and can provide expertise for evaluation of progress. In general, a good rule is "the more evaluators the better"--up to a point where there is optimum coverage of all possible viewpoints without unnecessary repetition.

9. The number and type of evaluation instruments, like the number of qualifications of the evaluators, should be sufficient to afford complete evaluation.

Again, a good rule in general is "the more evaluation instruments, the better"--without unnecessary repetition and always ensuring that the type of instrument used is consistent with the learning objectives and learning activities, as well as with the learning styles and preferences of the learner.

10. Experimentation with new activities, including planned attempts to apply new principles developed by the learner, is an ultimate means of evaluation.

Kolb's "active experimentation" and Coleman's "re-application of principles in new circumstances" describe a neat combination of evaluation and application of learning, but the process of experimentation is itself a concrete experience that completes the circle and starts a new experiential learning cycle.

Prior Learning Assessment

In addition to learning plans (essentially they are for what CAEL calls "sponsored learning") there is another process application of experiential learning to the assessment of prior learning. While the learning plans discussed above are primarily for the individual learner, the assessment of prior learning is a vital interest not only for the individual, but also for the teaching institution that is facilitating further learning and for the employer as a "consumer" of the learning outcomes.

The purposes and uses of prior learning assessment vary with the three parties: learners, educators and employers. For the learner and the educator (and for the employers to the extent that they are involved in facilitating further learning) the most basic purpose of the prior learning assessment is to provide an appropriate starting point for continued learning. It is never very easy to decide where to go to or how to get there unless we know where we are to start with.

Of special interest, both to the learner and the facilitators of further learning is the role of recognition of prior learning as it relates to learner motivation. Whether recognition is in the form of diagnosis, placement (academic or career), waiver of requirements, or actual award of credit, it can be a significant motivating factor. Students who are forced to re-learn what they already know, or who are expected to perform at levels for which they are under-prepared, or workers who are either under-employed or are assigned tasks that are beyond their levels of competence--all of these are expensive mismatches that can be avoided if prior learning is accurately assessed before new learning or work tasks are undertaken.

Principles of Assessment

The techniques of assessment and the principles that are applied to maintain quality assurance are covered in detail by various CAEL publications. A Compendium of Assessment Techniques covers the full range of techniques with illustration of each and references for further study (Knapp and Sharon, 1975). Principles of Good Practice in the Assessment of Experiential Learning gives a detailed description of the various stages in the assessment process, and then lists a series of principles that are essential to their effective implementation (Willingham, 1977).

For our present purposes we include only a brief summary of some of those principles that should be followed by institutions with prior learning assessment programs. Good programs that address the purposes described in the previous section require significant efforts in faculty and program development in order to meet the following standards:

- It is prior learning, not experience *per se*, that is assessed for possible academic recognition.
- Academic recognition for prior learning should be granted only for college-level learning that is currently valid and that has not already been recorded on the learner's transcript.
- Award for credit for prior learning must be made by faculty members who are trained in the techniques of assessment, and who are qualified in the subject for which credit is granted.

Credit for the Assessment Process

The greatest weakness of prior learning is that it usually has occurred without most of the advantages of planning which are listed above as ten rules to follow. Prior learning is largely incidental learning. Nevertheless there may be justification for granting some credit to students (and some teaching credit to faculty members) who successfully complete an assessment program. Some important new learning can result, and some of the prior learning can be fleshed out or "perfected" in the process of assessing it. The new learning is the range of "learning how to learn" lessons described above. A by-product of assessing the past is the development of a learning plan for the future. In fact, as we have already noted, every learning plan ought to be based on an evaluation of prior learning.

Applications of Experiential Learning Strategy for College Career Education

There are many bridges between the process applications we have discussed and the subject applications to which we now turn. The learning process itself is one of the most important things one can learn in college, or use in college or on the job. But, beyond learning how to learn, how can experiential learning be applied to two major undertakings: getting a college degree; and preparing for a lifelong career.

Before we look at each of these areas separately we need to consider the changing relationship between them. In the past it has been reasonably accurate to assume that there would be a significant correlation between major in college and the graduate's subsequent career. That assumption is increasingly invalid. In the 1960's, for example, more than 70% of college graduates entered professional and technical fields. But, in the 1970's fewer than half of the college graduates went into professional and technical careers (Occupational Outlook Quarterly, 1978-79, p.). A few projections by the Bureau of Labor Statistics tell the story dramatically: more than one-third of the jobs that will exist in 1985 do not exist in 1980; by 1984, the average person will be working at five to seven careers during a lifetime;

fewer than half of college graduates by 1985 will be working in careers that are related to their majors in college (Occupational Outlook Quarterly, 1978-79, p.).

Given these sobering trends and statistics it seems necessary to re-define the relationship between college and career. In the discussion that follows we will put strong emphasis on the development in college of those "transferable" areas of knowledge and skills that are common to most careers.

Experiential Learning and College Education

Experiential learning can be used in various ways to complete college requirements or to supplement them with non-credit activities. Prior learning assessment programs, as noted above, can play a significant role in increasing student motivation, in placing students at advanced levels, waiving some requirements, and granting formal credit. Prior learning is potentially useful for any part of a student's degree program--major, general education, electives and special requirements. The assessment of prior learning for credit by examination is common in most institutions and many fields of study. When the student's prior learning claim exactly matches a course or a requirement of the institution the assessment problem is relatively simple. Unless large number of students seek to qualify for credit, no special program or unusual administrative mechanism is necessary beyond the kind of "credit by examination" that is standard practice.

In many cases, however, prior learning from work, volunteer or travel experience is interdisciplinary, cutting across numerous departmental and curricular lines. Insitutions that are willing to commit themselves to this kind of assessment have special problems to resolve in order to reap the special rewards that go with success in the endeavor. First, since the learning outcomes being assessed are not coterminous with existing courses, or resident in a single discipline, an interdisciplinary faculty team is needed. Second, the faculty will probably need some special training to cope with the technical problem of assessing prior learning from a variety of sources. Third, additional administrative arrangements will have to be made for applications, fees and transcription of the results. Finally, ideally the curriculum of the institution should be re-cast in competency-based terms and "mapped" * to clarify the nature and

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* "Mapping" is a term used in CAEL literature to describe a process for the clarification of learning outcomes. It involves three steps: describing each learning outcome in a particular curriculum (i.e., converting the curriculum to competency-based terms); identifying the contribution of each learning outcome in relation to other outcomes (i.e., drawing a "map" or chart showing the sequencing of learning activities; and relating each learning outcome to appropriate assessment procedures for evaluating it).

sequencing of learning outcomes. If these two curricular improvements were simply for the purpose of facilitating the assessment of prior learning they couldn't be advocated or adopted widely. However, like many other quality measures undertaken by experiential educators, these two improvements are long overdue in traditional programs as well.

Sponsored experiential programs, such as internships and cooperative education, provide colleges and universities--and the students and communities they serve--with opportunities to add new strengths to their programs. One advantage of a good prior learning program as a foundation for the sponsored learning that follows, is that it can identify individual students' learning styles and preferences as well as their learning needs. This kind of information is valuable in determining whether, when, where and why particular students might benefit from planned experiential learning activities.

Depending on the student, and on the subject being studied, sponsored experiential learning offers a number of advantages. The opportunity to relate theory and practice is almost universally recognized as the most basic reason for sending students into the field. Under the general umbrella the specific advantages of sponsored experiential learning vary with the subject matter.

There are, however, some common skills and knowledge areas that may be appropriate learning objectives in virtually any experiential learning environment. Problem-solving techniques, decision-making, development of interpersonal skills, and the opportunity to work in interdisciplinary situations are among the learning objectives common in internships and cooperative education programs. However, in a CAEL survey in 1979-80 the following five items were perceived by experienced practitioners as the most important learning outcomes in contract learning programs:

1. greater responsibility for one's actions
2. enhanced sense of ownership of one's achievements
3. increased ability to define measurable goals
4. greater self-motivation to learn
5. improved self-concept
6. more effective integration of theory and practice

(Breen, 1980, Table 7)

Decision-making, problem-solving and interpersonal skills ranked 15th, 16th and 20th in the Breen survey, and the same practitioners only rated them 17th, 20th and 15th respectively as "most important" outcomes to be sought.

Experiential Learning and Career Education

Many terms are used to describe the various aspects of career education. For our present purposes we will use "career education" as an umbrella term and divide it into three areas for discussion as follows: "career exploration" will be used to describe that part of career education that is devoted to the choice of a career; "career development" will be used to describe the acquisition of transferable skills and knowledge that will be useful in a variety of careers; and "career training" will be used to describe the acquisition of technical skills and knowledge for a specific career. Experiential learning both prior and sponsored, can be a valuable tool in all three branches of career education.

Career exploration. Given the facts that most people will have five to seven careers in their lifetimes, and that most college graduates will work in careers not directly related to their majors, the question of career choice is not a simple matter of deciding which one. Career exploration has been increasingly recognized as a process of determining the type of work activities a person likes and can perform well, rather than of the specific job the person will undertake. With respect to the role of experiential learning, what this means is that the scales are tipped strongly in the direction of prior learning assessment and of volunteer work, rather than paid work assignments for career exploration. This does not mean that paid work assignments are not useful for purposes of making career choices. All of the student's past and present experience, including paid work, are useful sources of information about strengths and weaknesses and likes and dislikes. But the formally sponsored internship or cooperative education placement (because they require prior knowledge and skills useful to employers) are much more useful in later stages of career education. Work experience may be useful to students as job exploration, but is not as likely to be helpful--or even tolerable for--employers.

On the other hand, volunteer activities, particularly if the student has some specific learning objectives in mind, may be very useful in the career selection process. Students who don't know, for example, whether they like working with small children, or with older people, can find volunteer assignments in nursery schools or senior citizens homes. These activities, particularly when coupled with a classroom or counseling session, can add a useful experiential dimension to the analysis of career preference.

Assessment of prior learning is probably the most effective potential application of experiential learning to the problem of career exploration. Specifically, what is needed first in choosing a career field is to analyze the individual's values and skills. What is needed second is to match those preferences and strengths with compatible career fields. Assessing prior experiential learning offers an excellent opportunity for the analysis of both values and skills. The results of effective prior learning assessment should offer a clear profile, not only of what was learned (skills and knowledge), and how well (levels of competence), but how it was learned (a key to learning styles), and why some things were learned and others were not (a key to both value preferences and skill levels).

While this may be an ideal (and a potential) role for prior learning assessment it is clear that contemporary practice is not particularly effective toward these ends. In his survey of portfolio assessment practices for CAEL, Breen (1980, Table 2) found that the most frequently reported learning outcomes resulting from preparation of a portfolio were improved self-concept, sense of ownership of one's achievements, ability to distinguish between experience and learning, ability to organize information, and more realistic attitude about one's own strengths and weaknesses. This indicates considerable success in developing a profile of what was learned and how well. However, it indicates much less success in the identification of values and goals. Increased ability to set educational goals was 8th on the list of reported learning outcomes, clarification of career goals was 13th, more realistic career planning was 18th and increased ability to clarify one's values was 23rd on a list of 25 outcomes rated by experienced practitioners.

Career development. There is a lot of overlap between the career exploration stage and the career development stage. In an era when the average person has many careers during a lifetime, the process of career exploration may, in fact, be viewed as continuous. When exploration is joined by the development stage the emphasis shifts to the sharpening of those skills that have been identified as both within the individual's range of value preference and competence potential, and needed in the potential career field(s) that have been identified in the exploration stage.

While prior learning assessment may already have identified patterns of individual skills and basic competences, sponsored learning can be very effective in sharpening existing skills and in developing new ones that are within the individual's range of competence. Since career decisions will not in every case be final at this stage, the most effective efforts are in the development of transferable skills and knowledge that will be useful in a variety of careers. Sponsored experiential learning can play a major role in this vital developmental activity.

In a study for the California State University and College System (CSUC), Paul Breen has listed seventy-six career-related liberal skills that he defines as "transferable, functional abilities that are required in many different problem-solving and task-oriented situations" and are "interdisciplinary abilities involving many areas of human development (e.g., cognitive, affective, social, psychological and moral development)". (Breen, Footnote 1, Product 2) Breen divides the seventy-six abilities into nine categories. (The complete list is appended to this paper.) Some of the items on this comprehensive list might not be necessary learning objectives for all people. For example, those not interested in advancement to supervisorial assignments might not need "management and administrative" skills such as "delegating responsibility" and "motivating and leading people". Similarly, those interested in manual work or service activities might not need "research and investigation" skills such as "designing experiments" or "testing the validity of date".

Most of the Breen list however, describes skills that are not only transferable among many careers, but essential to virtually all careers. For example, "communication skills" such as "listening, writing and speaking", and "human relations and interpersonal skills" such as "interacting effectively with peers and supervisors", are among the most common job requirements listed by employers in almost any field.

Some of Breen's seventy-six transferable liberal skills are commonly and effectively taught in the classroom. Most of them, however, are abilities that require an integration of theory and practice that may be achieved most successfully through an appropriate mix of classroom and experiential learning. Almost all of Breen's list appear in one or more of the twenty-five categories of his CAEL study of learning outcomes and program activities. In that study he found that "over 75% of the practitioners rated 'actual work experience' as the single most 'highly important' program activity influencing student learning" (Breen, 1980, p. 8). This, coupled with the emphasis that prospective employers commonly give to "experience" as a qualification, amounts to a strong endorsement for experiential learning as a career development strategy.

It should be noted, before we turn to the more job-specific aspects of career training, that both prior learning assessment and sponsored experiential learning can make important contributions to the development of career-related liberal skills. In the CAEL survey, Breen (1980, p. 10) reports that "many of the most significant portfolio assessment learning outcomes and the activities perceived as 'most important' for producing those outcomes are also some of the most significant learning outcomes and the 'most important' activities commonly found in contract learning programs".

Career training. For students who have already made firm career choices the utility of experiential learning has long been recognized. Internships and related types of work experience are already incorporated into the traditional programs of many disciplines and subject areas. However, there are still several improvements that need to be made in the application of experiential learning strategies in this stage of career education. First, the strategy needs to be applied to more fields. While it has been common in teaching, social work and in many technical subjects, it is only recently being applied with good results in such fields as history, with internships in libraries, company archives and a wide variety of research activities.

Second, even in many of the most firmly established internships there is a need for improved learning and assessment strategies. Often it is assumed, by both the employer and the campus, that on-the-job experience is, in fact, on-the-job training, i.e., that experience automatically means learning. But, between the assumption and the actual accomplishment the development of formal learning plans is too often ignored or treated so casually that important learning opportunities are missed or jeopardized.

Finally, many established internships and work experience programs are utilized exclusively for training in job-specific skills. Extending the scope of this learning objective would provide an excellent opportunity for continuing the development of the transferable liberal skills discussed in the previous section.

Summary. Both prior and sponsored experiential learning are valuable sources of career education. Their relative roles tend to follow contrasting patterns: prior learning assessment is more helpful in the earlier stages of career exploration, and not as useful in the career training for those who have made firm career decisions. (Though if it has not been undertaken prior to the career decision, it is important that it is done before, or at least concurrent with, job-specific training.)

Sponsored experiential learning is less feasible (and probably less useful) for career exploration, but offers exciting opportunities for career development and for the more job-specific learning objectives of career training.

SECTION III

APPLICATIONS OF EXPERIENTIAL LEARNING FOR HEARING-IMPAIRED STUDENTS

In his forward to Edna Levine's book, The Psychology of Deafness, Boyce Williams (1960, p. viii) comments on the author's "great capacity to adjust theory to the hard facts of existence". In a sense, that is the task to which we now turn as we seek ways to apply experiential learning strategies to the college education of hearing-impaired students. It is a task made more difficult by both a paucity of theory in experiential learning, and some differences in viewpoints about what the hard facts of existence for hearing-impaired learners really are.

We will begin with the assumption that, like hearing students, hearing-impaired students need an individualized mix of traditional and experiential learning that reflects their individual learning needs, styles, strengths and weaknesses. To this we will add the assertion that there is no difference, initially, between hearing and hearing-impaired learners except in their hearing. Depending on a number of factors, however--including the age of onset, the degree of impairment, and a full range of environmental influences--the single, initial hearing deficiency may be extended into a much more complex pattern of experiential deficiencies. The purposes of this section are to explore the nature of this experiential deficiency pattern, to suggest a preliminary model for assessing it, and then to consider whether and how experiential learning strategies can be accomodated to the experiential deficiencies of hearing-impaired students.

Experiential Deficiencies of Hearing-Impaired Students

As we have already seen, the successful use of experiential learning as a teaching strategy depends on the analysis of two things: first, the learner's accumulated prior learning; and second, the learner's skills at the learning process. When applying this approach to hearing-impaired students, we need to determine two things about their experiential deficiency: first, the cumulative knowledge deficiencies--i.e., what they have missed out on in the past; and second, projected skill deficiencies--i.e., what, if anything, might restrict their capacity to learn in the future.

The cumulative experiential deficiency results both from what is not heard and what is not done. The range of this cumulative deficiency varies greatly. What has not been heard depends on both the age of onset and the degree of impairment. It may vary from absolutely no knowledge gained from hearing inputs for those born totally deaf, to a rich lifetime of hearing experience for "deafened adults" whose sudden "handicap does not take anything away from them except their hearing" (Jacobs, 1974, p. 58).

What has not been experienced by doing varies with nearly as much effect, but from influences that are much harder to measure. Among the factors that encourage or discourage "doing" by hearing-impaired persons are intelligence, personality and a long list of environmental influences including, most importantly, family and school. The variety of ways in which these influences combine and interact leads to a full range of results from the experiential sufficiency of the intelligent and mature person who has been accepted and become educated, to the extreme experiential deficiency of those who suffer from "learned helplessness". This latter deficiency is particularly relevant for our discussion because it is the direct result of a blockage in the individual's experiential learning system. Adele Thomas (1979, p. 210) has concluded that "at the crux of the learned helplessness concept is the conclusion that it is not the loss of rewards as such, but the loss of control over the situation that produces those rewards, which causes the passivity and decrease in persistence inherent in helplessness. When an individual's actions do not alter a situation, there appears to be no connection between outcome and action".

Two primary aspects of successful experiential learning are missing in the scenario described by Thomas: self-direction of the learning process, and the opportunity to experience the relation between outcome and action. Environmental influences that deprive any child of these advantages will add significantly to the experiential deficiency that the child carries as a handicap into adult life.

While this particular deficiency is not confined to the hearing-impaired, it can be aggravated for them by an environment that is overprotective, or by one that completely excludes the hearing-impaired person from participation in routine activities. Among other things, this experiential deprivation may show up specifically in terms of educational or career planning as a severe deficiency in knowledge of the world of work.

Compensation and Correction

Whatever the extent and nature of the cumulative experiential deficiency, two questions should be asked about it before we make any conclusions about the effect it may have on future experiential learning. First, the deficiency in hearing inputs may be compensated for by enriched inputs from other sources. As Fusfeld (1967, p. 270) points out, because hearing-impaired children are "compelled to rely more heavily on the non-auditory senses, (these senses) are re-enforced, or keyed, to a relatively greater degree than is the case with hearing children". While these enhanced inputs from other sources cannot totally compensate for the loss of auditory inputs their positive effects clearly reduce the necessary experiential deficiency of hearing-impaired persons. In calculating their readiness for experiential learning their teachers need to consider the possible offsetting effects of some experiential surpluses from visual, kinesthetic and olfactory sources.

Additionally, the learning readiness of hearing-impaired students may be enhanced by the application of corrective activities. Experiential deficiency is not confined to those with impaired senses. Virtually all prior learning assessment uncovers gaps in the learning outcomes. In fact it is one of the major benefits of prior learning assessment that it not only identifies what has and has not been learned, but also how well or how completely it was learned. In short, prior learning assessment yields a knowledge and skills profile that includes weaknesses as well as strengths. Many of the experiential deficiencies thus identified can be corrected. While this sometimes requires special remedial efforts, it is often possible--especially if there are some experiential surpluses partially compensating for some of the deficiencies--to individualize the learning program in such a way that experiential gaps can be filled without interrupting normal progress.

Prior learning assessment is not pure magic. However, it would be difficult to overrate its potential role as an educational tool. By identifying individual learning profiles, prior learning assessment becomes an indispensable tool for all students. For those with experiential deficiencies it has special values as a source of recuperative education.

Deficiencies in Learning Skills

We have been discussing deficiencies in knowledge that may result from reduction or absence of auditory inputs. These knowledge deficiencies are, themselves, a major factor in determining the capacity for future learning. But there may be a greater problem. The question, put bluntly, is whether hearing-impairment causes learning impairment?

It is not necessary here to spend much time on the relationship between hearing and intelligence. The myth that hearing loss affects intelligence should have been laid to permanent rest long ago. In passing, however, it still has to be noted that false assumptions about the relationship between intelligence and hearing impairment may themselves be an indirect factor influencing the learning capacity of hearing-impaired students. These assumptions may be held both by those who have hearing impairment and the normally hearing who play important facilitative roles in their learning environment.* Leo Jacobs, totally deaf since birth, has written at length on the stereotyping of deafness by the hearing community. He is very frank about the fact that "because of the etiology of deafness, a larger proportion of deaf people than hearing have additional handicaps". But, he points out that "deaf adults cannot be stereotyped; they are essentially human beings with normal faculties, abilities and weaknesses except for a deficient sense of hearing" (Jacobs, 1974, p. 55).

But stereotyping persists and must be counted as a negative environment factor. Jacobs (1974) sums it up in his portrayal of "The Deaf as a Minority Group" and concludes that "the majority group status of the deaf is producing more numerous and greater problems for them than the handicap itself" (p. 17). Hans Furth (1966, p. 60) also emphasizes the role of environment factors:

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* The writer was told by a professor at the National Center for Deafness at (Northridge, California), herself deaf, that, "I always thought that hearing people were more intelligent--all of them".

> I would not deny that the 'experiential deficiency' of deaf youngsters is related indirectly to their inability to hear and use language. But I blame the environment and the schools for not being sufficiently inventive to work around the language problem and to create an intellectually challenging atmosphere.

Furth's conclusion that the experiential deficiency of deaf youngsters is related indirectly to their inability to hear and use language is based on many years of detailed research. He has tackled head on the question that is central to a discussion of the learning capacity of hearing-impaired students: Is a mature level of thinking possible without language?

The question is relevant, as we have already seen in discussing the Coleman and Kolb models, for both normally-hearing and hearing-impaired learners. In its narrowest definition, experiential learning is exactly that: Learning without symbols. We are, however, already committed to the proposition that the ideal in learning is an individualized mix of learning modes, including those that rely on linguistic symbols. Furthermore, we are concerned here with college-level learning that assumes some level of language competence. Those assumptions modify the need to consider whether thinking is possible without language. But, because the most pervasive experiential deficiency of hearing-impaired learners is linguistic weakness, it seems necessary to give further consideration to the role of language as a learning tool.

Much of the research on the subject has been with children. Some of the conclusions--for example, that "the notion of symmetry is largely a perceptual concept that can be grasped without verbal articulation" (Furth, 1973, p. 57)--seem at first to be irrelevant for the level of complexity of college learning. Even though Furth concludes from his study of learning about symmetry that "a person can understand and communicate his understanding of a logical principle without using language" it is a long leap from there to the conclusion that college-level learning of principles more complex than symmetry is possible without language.

Furth (1966) himself makes the leap repeatedly:

> "Knowledge or lack of knowledge of linguistic symbols is apparently largely irrelevant for the intelligent understanding of probability" (p. 62).

> "Failure to master a verbal language does not bar a deaf person from attaining a mature level of thinking

> if he is so motivated" (p. 71).
>
> "Thinking is obviously not based on language ability" (Furth, 1973, p. 58).

Goetzinger (1967), commenting on the work of Furth and his associates, specifically applies these conclusions to adolescents and adults and concludes that retardation involving "conceptual discovery", "inferential reasoning" and "conceptual transfer" is "merely a temporary setback no longer apparent at an older age level" (p. 293).

To some practitioners these conclusions seem to be contradicted by the learning difficulties they find in many hearing-impaired college students. Teachers and counselors at the college level frequently report that hearing-impaired students find abstract conceptualization (Kolb's third step in the experiential learning process) "extremely difficult" and an "area of frustration". "Inability to project", "weak reasoning and logic" and "transferability problems" are mentioned by practitioners as "probably language-dependent" difficulties that impede learning for many hearing-impaired students. (In passing, it may be significant to note that these same difficulties are persistent, and some would even say rampant, in many normally-hearing college classrooms.)

The gap between the theorists' findings and the practitioners' experience is probably more apparent than real. Their hearing loss alone need not put hearing-impaired students at a permanent and necessarily disastrous learning disadvantage. Furth (1966) closes the gap this way:

> Deaf people are similar to people from an impoverished social and intellectual environment. If the culture and the surrounding life habits do not habitually foster or at least encourage habits of thinking, formal thinking is less likely to emerge, or at least it emerges with much less frequency than in an environment that provides opportunities for thinking. On the other hand, failure to master a verbal language does not bar a deaf person from attaining a mature level of thinking if he is so motivated (p. 71).

More research is needed on the experiential deficiencies of hearing-impaired learners, particularly at the college level. But for the moment it seems reasonable to conclude that hearing-impaired college students are subject to two types of experiential deficiencies that might affect their academic performance: their knowledge base may have gaps reflecting reduced auditory input; their learning capacity may be restricted by insufficient development of their thinking abilities. Both types of deficiency may be aggravated by low levels of language competence, but both may be counteracted by high levels lf language competence. The experiential deficiencies of hearing-impaired learners can be diagnosed and they can be treated. We turn next to the prospects for developing a model for these purposes.

A Model for the Diagnosis of Experiential Deficiency of Hearing-Impaired Students

All learning ought to be, and experiential learning necessarily is, an individual process. It is personal and unique to the individual at every stage: the choice of objectives; the selection of appropriate learning activities; and the development of effective evaluation methods.

Similarly, all learners ideally ought to, and hearing-impaired learners particularly must, apprpach new learning ventures armed with a detailed self-profile of their past learning history. For hearing-impaired learners that profile must give as full an account as possible of their experiential deficiencies in knowledge and in learning skills.

Numerous assessment instruments already exist for the measurement of knowledge, and for various components of the learning skills package--including reading, writing and speaking. These resources can serve well in telling us where the hearing-impaired learner is in terms of knowledge and skills. Wherever they are applicable those various instruments should be used to develop various parts of the total picture. We need, however, to know not only where the learner is but how s/he got there. The profile of past learning, by itself, is like an inadequate daily journal or log, that tells us "what" but not "how" or "why". If the hearing-impaired learner is to have full service from the academic profession s/he must have benefit from a learning opportunity that is creatively recuperative rather than simply relfective, a plan that can recover some lost learning opportunities and develop some new strengths for future learning.

The rough model on the next page is offered as an initial approach to the development of a diagnostic instrument for analyzing the sources of the experiential deficiencies in hearing-impaired learners. It is not a measuring instrument, but a heuristic device. It cannot tell us, for any individual learner, either what the experiential deficiency is or how it got there. But, if we use other available instruments to determine the

PATTERNS OF EXPERIENTIAL DEFICIENCY

VARIABLES		COMBINATIONS OF VARIABLES															
		I	II				III						IV				V
			a	b	c	d	a	b	c	d	e	f	a	b	c	d	
AGE OF ONSET																	
pre-lingual	(-)	-	-	-	-		-	-	-				-				
post-lingual	(+)					+				+	+	+		+	+	+	+
DEGREE OF IMPAIRMENT																	
total loss	(-)	-	-	-		-	-			-	-					-	
minor loss	(+)				+			+	+			+	+	+	+		+
OTHER SENSES																	
impairment	(-)	-		-	-	-		-			-	-		-			
normal	(+)		+				+		+	+			+		+	+	+
ENVIRONMENTAL INFLUENCES																	
negative	(-)	-	-		-	-			-	-		-			-		
positive	(+)			+			+	+			+		+	+		+	+

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extent of experiential deficiency, then this model gives us an approach to the problem of identifying the sources of deficiency. It is a model that outlines the questions that need to be asked. Only through individual counseling sessions can the answers be generated and the complete individual learning profile completed.

The model has three primary elements. Two of them are in the left hand vertical column: a list of the variables that may contribute to experiential deficiency; and a range of deficiency for each variable (from total deficiency indicated by minus (-) signs, to no deficiency indicated by plus (+) signs). The third element is the combination of deficiencies into patterns arranged in the vertical columns I through V along a horizontal continuum from the most severe combination (all minuses in Col. I) to the least severe combination (all plusses in Col. V). A discussion of each of these elements will underline the facts that: the model is a source of relevant questions rather than of crystal clear answers; and that it must be carefully adapted to reflect individual circumstances.

The List of Variables Contributing to Experiential Deficiency

The first three variables are all related to the physical condition of the individual learner: age of onset; degree of impairment; and other affected sensory capacities. They are relatively easy to measure and to describe.

The other variable, environmental influences, is a collection of factors that are difficult both to define and to measure. It covers both "family inclusion" (the degree to which the hearing-impaired person is accepted as a full member of the family) and schooling.

There may be additional variables, either for all hearing-impaired learners, or for individuals. Basic intelligence, for example, is a major factor in learning capacity. It is not included on the list because it is a variable not related to hearing impairment. But, in analyzing the learning profile of an individual it must be taken into account. Similarly, the degree of motivation and other personality and attitudinal factors, may be important variables influencing the degree of experiential deficiency--but not necessarily related to hearing impairment.

In any case, the first step in using the experiential deficiency model is to make a complete list, for the individual learner, of the applicable factors. It may also be important, depending again on individual circumstances, to prioritize the list. While the model appears to suggest that the variables are of equal weight it is probably true that their relative impact will vary.

The Range of Deficiency for Each Variable

The simplicity of the model is also misleading with respect to the range of deficiency for each of the four variables. The degree of impairment for example, is shown as either minor or total, not reflecting the many degrees of actual impairment. Instead of a simple plus or minus each of the variables must be recorded on a more complex scale reflecting the reality for each individual. While that may be relatively easy for degree of impairment, in decibels, it is an extremely complex problem for something like "family inclusion". Perhaps a five, maybe even a ten, point scale could be devised to reflect the degree to which the family environment either contributed to or prevented the growth of experiential deficiency.

Combinations of Deficiency Factors

The sixteen vertical columns shown on the model record all of the possible combinations of plus and minus scores for four variables. Column I is the most severe combination--four minuses, and Column V is the least severe--four plusses. Column II has the four possible patterns where there are three minuses and one plus. Its mirror opposite, in Column IV, shows the four possible combinations of one minus and three plusses. Column III shows the six possible combinations of two minuses and two plusses.

Except for Columns I and V, it is not accurate to say that the five columns constitute a continuum reflecting degrees of severity from the greatest to the least. That judgment could only be made by weighting the impact of each variable. Conceivably, for example, one individual with three minuses and only one plus, might actually have a less severe deficiency than another with only two minuses.

Perhaps the best way to emphasize the contrast between the simplicity of the model and the complexity of the reality it addresses is to consider the impact of adding more variables, or of moving from a two point scale (+ and -) to a more discriminating one (5 points, 10, or even a 0-100 percentage range). If, for example, we broke environmental influences down into two variables, family and school, and had a total of five variables instead of four, the number of vertical columns, or possible combinations of plusses and minuses, would only jump from five categories to six categories. But the number of sub-columns (16 on the four variable model) would leap to 34! It staggers the imagination to think of superimposing on this explosive device the additional complexities of, say, a ten point scale instead of a simple plus and minus rating. Clearly the model is more suggestive than it is prescriptive, it offers a way of approaching, rather than a scale for recording precisely, the complex analysis of individual deficiencies in experience.

Whether it would be worthwhile to invest research resources in a search for a more precise measurement model is uncertain. Hans Furth (1973), who has studied the experiential deficiency of hearing-impaired children intensively, is not sanguine about the possibility:

> We can never nearly isolate the variable in question and hold everything else constant... Realistically, all social and educational behavior is the outcome of many factors, and behavior in turn constantly affects these very factors so that it is impossible to devise a clean, neat experiment that would carry the conviction of an observed fact (p. 53).

Recognizing these difficulties, Furth himself, however, did not give up. The results of his research, as noted above, have continued to provide new insights toward the better understanding of a complex problem. Much has been done. More can be.

Leo Jacobs (1974), using three developmental factors, identifies nine overlapping types of deaf adults. His three factors are: "the degree and kind of deafness; the amount of native intelligence; and the environmental components, which include education, family and community" (p. 55). The nine categories are: adventitious deaf adults (ages of onset, 5 to 12); pre-lingual deaf adults who came from deaf families; other pre-lingual deaf adults; low verbal deaf adults; products of oral programs; products of public schools; uneducated deaf adults; deafened adults (post education age of onset); and hard of hearing adults (minor loss). (Jacobs, 1974, pp. 56-59)

The research problem that Furth laments may prevent us from developing a perfect model. But it would be well worth the efforts to continue the exploration of all of the variables and to explore ways in which they combine to form various categories of experiential deficiency. Experiential deficiencies exist for all individuals. The more we know about their sources and their extent, the better able we will be to find the appropriate patterns of experiential learning to serve individual hearing-impaired students.

Experiential Deficiency and Experiential Learning

How does the experiential deficiency of hearing-impaired learners affect the utility of experiential learning as a teaching strategy for them? Among the factors that affect success in experiential learning for any learner are: the knowledge base appropriate to a particular learning objective; basic intelligence; motivation to learn; and learning skills, particularly linguistic competence. Except for intelligence, each of these factors _may_ be influenced negatively by hearing impairment. And, again excepting intelligence, each of them is subject to remediation.

In calculating the effects of experiential deficiency on experiential learning it is necessary to consider how each of these factors may influence individual performance at each step in the learning process: information acquisition; information processing; and evaluation.

One source of information is, of course, the individual's accumulated store of knowledge. The greater the store of knowledge that is relevant for a particular learning objective the better. This is the first place in the process where the experiential deficiency of hearing-impaired learners may present problems. To determine whether experiential learning is a possibility without prior remediation of a knowledge deficiency, it is necessary for the teacher or facilitator of learning to know what the knowledge prerequisites are (i.e., the learning process should be "mapped" as noted on p. 38 above).

In addition to the existing store of knowledge, success in the first step in the learning process is dependent on the capacity and opportunity for acquiring new information. The hearing-impaired learner's experiential deficiency in this respect may be strongly affected by linguistic incompetence. Certainly a vastly richer range of concrete experience is available to the communicator, oral and written. Hearing-impairment, itself, except as it may affect basic language competence, does not seriously complicate this stage of the experiential learning process. In fact, if we used the narrowest definition of experiential learning (as restricted to non-symbolic inputs), the hearing-impaired learner would suffer no disadvantage.

The disadvantages of linguistic incompetence are strongest in the second stage of experiential learning: the processing of information through reflective observation and abstract conceptualization resulting in the development of general principles. Intelligence may be the most important variable in the effectiveness of reflective observation. The very nature of the term suggests that it refers to something that happens within. Intelligence is also a vital variable in abstract conceptualization and the development and understanding of general principles--but, these processes may be aided significantly by sophisticated symbolic inputs through linguistic media. The advantages of combining the deductive and inductive modes of learning are very much language-dependent. This is the area in which teachers and counselors of hearing-impaired college students report the greatest difficulties, and express the strongest reservations about the students' performance in traditional classroom situations. Experiential learning offers no magic alternative. Finding the right mix, for each individual student, of experiential and traditional learning modes can be very helpful. But it is doubtful that there is any effective mix that does not depend heavily on linguistic competence as a prerequisite to effective college-level learning.

In the last stage of the learning process--evaluation, including the experimental re-application of general principles in new circumstances--there are major roles not only for intelligence and motivation, but for a creative "inventiveness" factor. While language competence is facilitative it is not controlling. Hearing-impairment is pretty much on the sidelines as the thinking process is manipulated by the learner for the related purposes of evaluating what has been learned and planning next steps.

Language competence is important at every stage of the experiential learning process. But while some parts of the process are not actually language-dependent, all parts of it are thinking-dependent. Hans Furth (1973) has suggested that we may have our priorities reversed as we consider the roles of language and thinking in the education of hearing-impaired learners:

> It is possible that the educators of deaf children could take the bold step of breaking with the unhealthy tradition that has almost completely forgotten the thinking of the growing child and put language and reading as the immediate primary goal of early education? Educators of deaf children have every reason to do so. Their clients are so poor in language that to wait for them to become good readers before nourishing their intellectual development is an almost sure way to deny them intellectual food entirely. On the other hand, both theory and research indicate that intelligence does not build language, but rather, language builds on intelligence. Hence, if our educational aim

> is to produce adolescents who are motivated and able to read written material that can challenge their thinking, our first concern should be with the source of the intelligent use of language and not with the medium of language as such. A 'school for thinking' rather than a school for language or reading would be important for all young children, bright or dull, poor or rich, but for none is it more urgent than for deaf children. (p. 103)

Perhaps it oversimplifies the problem of experiential deficiency for hearing-impaired students to conclude that efficient thinking, not a language-dependent skill, opens the door to substantial experiential learning. And it may well be that successful development of efficient thinking skills would lead almost inevitably to linguistic competence as a by-product, even if it is not accomplished until the learner is in college. In any case there is encouraging evidence that the controllable aspects of experiential deficiency--environmental factors, including education--permit us to train hearing-impaired students to be effective thinkers and successful experiential learners.

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CAREER-RELATED LIBERAL ARTS SKILLS

DEFINITION: Liberal arts skills are transferable, functional abilities that are required in many different problem-solving and task-oriented situations. They are performance abilities that can be acquired through informal life experiences or formal education and training. Although the specific subject matter of academic disciplines is often a means for developing or refining liberal arts skills; the application of these skills is not dependent on the mastery of an academic discipline. Liberal arts skills are interdisciplinary abilities involving many areas of human development (e.g. cognitive, affective, social, psychological and moral development). They also assume competence in the basic skills of reading, writing and computation. Finally, these abilities may be possessed at different levels by different individuals ranging from unfamiliar with the skill to fully competent.

I. Information Management Skills: Ability to...
   - A. sort data and objects.
   - B. compile and rank information.
   - C. apply information creatively to specific problems or tasks.
   - D. synthesize facts, concepts and principles.
   - E. understand and use organizing principles.
   - F. evaluate information against appropriate standards.

II. Design and Planning Skills: Ability to...
   - A. identify alternative courses of action.
   - B. set realistic goals.
   - C. follow through with a plan or decision.

- D. manage time efficiently and effectively.
- E. predict future trends and patterns.
- F. accomodate multiple demands for commitment of time, energy and resources.
- G. assess needs.
- H. make and keep a schedule.
- I. set priorities.

III. Research and Investigation Skills: Ability to...

- A. use a variety of sources of information.
- B. apply a variety of methods to test the validity of data.
- C. identify problems and needs.
- D. design an experiment, plan or model that systematically defines a problem.
- E. identify information sources appropriate to special needs or problems.
- F. formulate questions relevant to clarifying a particular problem, topic or issue.

IV. Communication Skills: Ability to...

- A. listen with objectivity and paraphrase the content of a message.
- B. use various forms and styles of written communication.
- C. speak effectively to individuals and groups.
- D. use media formats to present ideas imaginatively.
- E. express one's needs, wants, opinions and preferences without violating the rights of others.
- F. identify and communicate value judgments effectively.
- G. describe objects or events with a minimum of factual errors.
- H. convey a positive self-image to others.

V. Human Relations and Interpersonal Skills: Ability to...

- A. keep a group "on track" and moving toward the achievement of a common goal.

B. maintain group cooperation and support.

C. delegate tasks and responsibilities.

D. interact effectively with peers, superiors and subordinates.

E. express one's feelings appropriately.

F. understand the feelings of others.

G. use argumentation techniques to persuade others.

H. make commitments to persons.

I. be willing to take risks.

J. teach a skill, concept or principle to others.

K. analyze behavior or self and others in group situations.

L. demonstrate effective social behavior in a variety of settings and under different circumstances.

M. work under time and environmental pressures.

VI. Critical Thinking Skills: Ability to...

A. identify quickly and accurately the critical issues when making a decision or solving a problem.

B. identify a general principle that explains related experiences or factual data.

C. define the parameters of a problem.

D. identify reasonable criteria for assessing the value or appropriateness of an action or behavior.

E. adapt one's concepts and behavior to changing conventions and norms.

F. apply appropriate criteria to strategies and action plans.

G. take given premises and reason to their conclusions.

H. create innovative solutions to complex problems.

I. analyze the interrelationships of events and ideas from several perspectives.

VII. Management and Administration Skills: Ability to...

A. analyze tasks.

B. identify people who can contribute to the solution of a problem or task.

C. identify resource materials useful in the solution of a problem.

D. delegate responsibility for completion of a task.

E. motivate and lead people.

F. organize people and tasks to achieve specific goals.

VIII. Valuing Skills: Ability to...

A. assess a course of action in terms of its long-range effects on the general human welfare.

B. make decisions that will maximize both individual and collective good.

C. appreciate the contributions of art,literature science and technology to contemporary society.

D. identify one's own values.

E. assess one's values in relation to important life decisions.

IX. Personal/Career Development Skills: Ability to...

A. analyze one's life experiences.

B. relate the skills developed in one environment (e.g., school) to the requirements of another environment (e.g., work).

C. match knowledge about one's own characteristics and abilities to information about job or career opportunities.

D. identify, describe and assess the relative importance of one's needs, values, interests, strengths and weaknesses.

E. develop personal growth goals that are motivating.

F. identify and describe skills acquired through formal education and general life experience.

G. identify one's strengths and weaknesses.

H. accept and learn from negative criticism.

I. persist with a project when faced with failure unless it is clear that the project cannot be carried out or is not worth the time or effort needed to complete it.

Multicultural Coping and Adaptation Competencies

Jacqueline Howell Wasilewski

Janice D. Martin Mitchell

An Abstract

Coping and Adaptation Strategies in Multicultural Settings

Jacqueline Wasilewski, Ph.D. and Janice D. M. Mitchell, Ed.D.

The central focus of this review is to try and understand the competencies necessary to function effectively in social situations that are culturally heterogeneous, especially these required by the Hearing-Impaired to cope with and adapt to multicultural contexts with special emphasis on the linguistic aspects of such an adaptation.

To do this relevant aspects of five bodies of literature have been reviewed: anthropology, linguistics, communications, psychology, and training.

From anthropology comes the concept of culture and an understanding of how one learn one's first culture and of how second cultures are learned. From linguistics comes an understanding of language learning, of the covariation of langugage and society, and of bilingualism. From communications research we learn the characteristics of effective communication and how to communicate across boundaries, how to negotiate difference. From psychology we gain an understanding of coping and adaptation processes and of social competency, and from the training literature, what means are presently available for helping people develop the competencies necessary for effective multicultural functioning.

This review was written on the basis of several quite definite points of view, some of which are controversial, but which nevertheless offer valuable perspectives on the competencies involved in the effective dealing with difference, especially for the Hearing-Impaired community.

1. The community of the Hearing-Impaired is viewed as if they were a cultural minority within the dominant Hearing culture with its own unique system of communication.

2. The most distinctive differences between the community of the Hearing-Impaired and that of the Hearing center around this communicative aspect, and the plight of the Hearing-Impaired is not dissimilar from that of other users of small languages in the world.

3. Being a minority culture within a dominant, culturally different society, if members of the Hearing-Impaired community wish to function widely in the world and not only in their communitarian enclave, then they must, as part of an additive strategy, master as many aspects of the dominant Hearing culture as possible.

4. This mastering of the dominant culture is not just acculturative, but is a complex process of coping and adaptation which involves not only adapting to the dominant culture but also causing the dominant culture to adapt itself to the requirements of the minority culture.

5. Thus, the central tasks for the individual are:

   a) learning to function in different settings,

   b) learning to communicate across differences, and

   c) learning to negotiate those differences, i.e., who adapts, to whom, when?

Wasilewski and Mitchell suggest that the hearing-impaired community must ask several important questions in terms of their participatory interaction with the hearing community:

1. What is the level of adaptation possible by both groups? and,
2. What degree of assimilation is desired?

The authors offer ethnographic studies and cultural mapping as two methods of achieving some of the answers to such questions.

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